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THE

# AMERICAN FARMER:

A

MONTHLY MAGAZINE

OF

## AGRICULTURE AND HORTICULTURE.

THE OLDEST AGRICULTURAL PUBLICATION IN THE UNITED STATES.

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WORTHINGTON & LEWIS,

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BALTIMORE, MD.

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Wishing to show their sympathy for their Southern Patrons, and willing to lend them a helping hand in their present difficulties, have reduced the price of their

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# PREMIUM

### IRON CYLINDER

## A black and white illustration of a man wearing a hat and a long coat, driving a horse-drawn wagon. The wagon is loaded with a large, rectangular object, possibly a crate or a piece of machinery. The man is holding the reins and the whip. The horse is harnessed to the wagon. The background is a simple, dark landscape with some foliage in the foreground.

With the  
IMPROVED GUANO

## ATTACHMENT

## AND GRASS

### Seed Sower:

So as to place it within the reach of all. It will sow Wheat, Rye, Oats, Barley, &c., in any given quantity, from 4 to 16 pecks to the acre.

It will sow Guano, Plaster, Ashes, Bone Dust, or any of the manufactured Fertilizers; the desired quantity being regulated with perfect accuracy.

It will sow Corn or Beans in Drills, by simply shutting off the feed to as many tubes as you desire.

**It also sows Grass and Clover Seed. &c. &c.**

Thus in the BICKFORD & HUFFMAN Drill, you have a machine to sow any of your grain with greater regularity, Guano and other Fertilizers more perfectly and economically, and Grass or Clover Seed, broadcast behind the Drill, after the sowing and manuring is performed, more evenly than can be done by hand, and all with one man and team; and it is made a perfect broadcasting machine, for either Grain or Guano, or both by simply removing the tubes.

These Drills are three sizes, 7, 8 and 9 tube, and two kinds, straight and doubled rowed—the latter being for use on rough, stony, or cloddy ground; and we furnish either pole or shafts—the latter to work three horses abreast. We also manufacture a Plain Drill for Seeding Grain only, but to which we attach our Grass Seeder.

A full supply of Repairing Parts always on hand, and Repairing promptly and efficiently executed.

Having made arrangements to sell most of the leading machines of the day, we are prepared, from a practical knowledge, to recommend the best.

**Prices, Delivered on Boat or Cars at Baltimore.**

FOR 1887.

8	Tube Grain Drill.....	\$85 00	Tube Grain Drill with Guano attach't.	\$125 00
9	" " ".....	90 00	" " " " " " "	130 00
	Grass seed attachment to either of the above.....			\$10 00

 FOR INFORMATION, &c., ADDRESS

# W. L. BUCKINGHAM.

**GENERAL AGENT**

**No. 59<sup>1</sup>/<sub>2</sub> South Charles street,  
BALTIMORE, MD.**







# THE AMERICAN FARMER:

DEVOTED TO  
**Agriculture, Horticulture, and Rural Economy.**

[ESTABLISHED 1819.]

"O FORTUNATOS NIMIUM SUA SI BONA NORINT  
"AGRICOLAS." . . . . . Virg.

Sixth Series.

BALTIMORE, JANUARY, 1868.

Vol. II.—No. 7.

## CHRISTMAS.

"The shepherds on the lawn,  
Or e'er the point of dawn,  
Sat simply chatting in a rustic row.  
Full little thought they then  
That the mighty Pan  
Was kindly come to live with them below;  
Perhaps their loves, or else their sheep,  
Was all that did their silly thoughts so busy keep."

THE OLD FARMER hails friend and foe with  
a Christmas greeting. Peace and good will!

Let our thoughts be of the Prince of Peace,  
who came once a little child in great humility,  
and will come again in glorious majesty a  
King and Judge.

The "mighty Pan" the poet calls Him; the  
God of Shepherds and of Flocks. "The Good  
Shepherd" he calls himself. The Good Shep-  
herd careth for his sheep. He must bring  
them back to his ways when they stray; He  
must drive them even with whips, if need be,  
into his green pastures. What if those who  
are of his flock have grief and trouble to en-  
dure for a while—He might give them, just  
as well, if he saw fit, honour and power and  
riches, and all the comforts and joys which  
these may bring—He gives these continually  
to such as shall never see His face.

## Work for the Month.

### JANUARY.

The old year and its work finished up, the  
new one with its engagements demands at-  
tention. A plan of working operations for  
the year should be thoughtfully made. Allot

to each crop its proper ground. Determine  
the extent of each, shunning alike the error  
of over cropping on the one hand, and on the  
other of not having enough to task well your  
cropping resources. It is a nice point and of  
much importance to adapt the work of the  
season to the available means of working and  
to the capabilities of the manager. Manage-  
ment is a great power in agricultural opera-  
tions, especially when these are on a scale of  
any extent.

### WHEAT FIELDS.

Look occasionally to these and keep the  
water furrows open, bearing in mind that it  
is excess of water rather than excess of cold  
which causes winter-killing. If there has  
been a good fall growth, graze with cattle  
when the ground is in condition for it, and if  
there has been fall fly, graze with sheep.

### TOBACCO.

Continue to strip tobacco whenever it may  
be in order, and dispatch the work, observing  
the suggestions of last month. Get in hand  
stuff for hogshead siding and heading, so that  
they may be in readiness without consuming  
more valuable time later in the season. The  
timber for hoops should be cut green when  
wanted for use.

### TOBACCO BEDS.

Have cut early, the brush and wood for  
burning tobacco beds, and take the first op-  
portunity of the ground being in condition for  
working, to prepare for seeding. It some-  
times happens that this occurs in this latitude  
in the month of January, and not again per-  
haps till very late in the season. Last year

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M. Dept

the spring season was so bad as to make the sowing of plants very late, and such a spell of weather as we sometimes have in January, though we had none last year, would have given great advantage to the planter. Some planters get rid of the great labour of burning by substituting heavy applications of Peruvian Guano, at the rate of six to eight hundred weight chopped in while preparing the bed.

#### CARE OF STOCK.

Have horses, cows, calves, oxen, and sheep, well looked to according to last month's notes. As ewes approach the season of lambing, give them a careful oversight, and feed them some grain, that they may be kept in good heart. Keep breeding sows in good condition, if you expect from them thrifty broods of pigs. Supply all deficiencies in the number of working stock.

#### CARTS AND IMPLEMENTS.

Have carts and implements of all sorts, thoroughly repaired, if they need it, and keep all well secured from weather. If there is not shedding or house room for every thing, provide it now, when the necessity is apparent, and you have the leisure for it. Have all gearing overhauled, repaired and greased. Give the blades of scythes, the knives of your reaper and mower, and anything about other agricultural machines or implements likely to suffer from rust, a thin coating of grease and beeswax melted together. Have ice hooks, leather mittens, saws and axes, all ready for a speedy gathering of the ice crop.

#### PLANTING TREES.

If there be trees to plant in spring, dig out the holes in any suitable weather, and let there be no overhaste that will prevent its being well done. Set stakes near the trees planted out the past fall, and fasten the trees to them securely, with ropes of straw, to prevent the evils produced by the winter winds. Turn over and examine all piles of weeds and other trash, and kill the field mice you will be sure to find in some of them. To your peach trees, go down on your knees, with knife and bradawl, or other probe, and hunt out the grub. Use a good cushion of straw to kneel upon.

#### MANURE.

Gather materials for manure from every source. Look especially to the accumulation of the hog pens. See that the spouting takes

off well from the manure heap the water that would wash away its strength.

#### LIME AND ASHES.

Spread these on surface at any time that it may be convenient to do so.

### The Vegetable Garden.

Prepared for the American Farmer, by DANIEL BARKER, Maryland Agricultural College.

Anticipating the approach of hard frost, cautions have been given and directions repeated in former numbers of the "Farmer" for the protection of tender vegetables liable to be affected by frost. The exercise of forethought is a duty that our ever-changing climate renders imperative, in order to avert, by precautionary measures, the ill consequences that accrue from unfavorable circumstances of climate. In former numbers we have given instructions for hauling manure, trenching, and ploughing up all vacant plots in this department, which should be carefully and systematically carried on in all favorable weather. The formation of new borders for grape vines (when grown upon this department) should now be attended to, and all descriptions of work requiring the removal of earth.

**CAULIFLOWER.**—Sow seeds of this, and also of lettuce and cabbage, in boxes or upon a mild bottom heat, in a hot-bed frame, to be forwarded and transplanted in a protected situation. They will secure winter plants better than those sown in the open ground, and should the severe weather have destroyed those sown in the fall, they will prove valuable as substitutes.

**POTATOES.**—Where the ground is light and dry, a few of the early sorts may now be planted.

**RHUBARB.**—A succession of this may be had by covering the plants with large pots or boxes, and surrounding them with fermenting material, or by planting the roots in boxes and placing them in a warm cellar. The latter has the advantage of being less troublesome, a great consideration in the busy time which is approaching.

**RADISHES SOWN ON WARM BORDER** will require strict attention. The covering should be removed every fine day. Powdered charcoal strewn amongst them will be a preventive of damp, mildew and shanking up.

### The Fruit Garden.

That the first dish of strawberries is hailed with delight, no one will deny, and the man who can produce the first dish of this beautiful fruit a few days before his neighbors (means, &c., being equal) we consider to have accomplished a feat. Friendly rivalry will cause efforts to be made which will go beyond what we have already attained. The forcing of strawberries is carried on extensively in and around many of our large cities, from March to May, and during the spring of the past year (1867), were sold in the markets of Boston and New York for the very moderate sum of \$5 per ounce. Strawberries may be had from May (forced ones much earlier) until July; but to secure them from September through the winter we think a great desideratum. No one would object to a dish of this luscious fruit during the winter months. How many there are, confined by sickness, who can be revived even at the sight of fine ripe strawberries, sent by some kind friend who "has a heart that can feel for another," If only for such a purpose, then, I would say to those who have the means, endeavor to have this most delicious and excellent fruit *every month of the year*. I am here gently admonished to take the suggestion *home*—that of all places in this fair State, the "Agricultural College" is the one to make experiments, not only for the benefit of its pupils, but for the country generally. We appreciate the admonition and reply, we are doing all we can towards accomplishing the object. We have on our trial grounds seventy-five varieties of strawberries, with several hundred seedlings, raised from the leading kinds in cultivation. We have also made our arrangements for fertilizing a number of plants in pots, with the view of obtaining late kinds, thus prolonging the bearing season. But in order to have strawberries in the winter months, we must look to a very neglected variety, the Alpine. By planting this kind in pots during March, April, May and June, with the usual attention given to the large kinds, they will not fail to produce plenty of fruit. When the pots are well filled with roots, they should be placed near the glass of a greenhouse, in a temperature ranging from 55 to 75 degrees, giving them plenty of air whenever the weather permits. By introducing a few pots into the greenhouse every three weeks, there will be

no difficulty in having Alpines in fruit throughout the winter. This variety, when well grown, with the ripe and green fruit intermixed, and the pretty white flowers standing well up above the green foliage, are beautiful ornaments for the dinner table, or placed amongst plants in flower, have a very graceful appearance, giving a spring-like perfume, and adding much to the enjoyment of a "home."

The pruning of hardy grape vines may be done when not frozen. So with all the small fruits, such as raspberries, blackberries, currants, &c.

### The Flower Garden.

If a fine appearance is to be made in the way of flower gardening next summer, the next three months must be a time of activity in preparing the plants which are to produce those rich masses of bloom which the present style of flower gardening necessitates. If extent and brilliancy of rich color have anything to do with the designation "flower" garden, it never was more appropriate than now.

"Who does not love flowers?" To many they are the most cherished, not only of the household, but of our garden embellishments. To our feasts and festivals they add lustre and beauty, and pomp to many of our religious ceremonies. They cheer and comfort "the sick and afflicted." They adorn the bride, and in sadness are strewn upon the graves of our loved ones. The rich can have them throughout the year, but the majority of our city population have to be content with having them but for a limited portion of the year, and their enjoyment of flowers are mainly dependent upon public gardens and greenhouses. I am wandering far from my original object, which was merely to make a few remarks preparatory to the busy season approaching.

To the amateur (for whom we write) I would say, arrange without delay the way in which you wish your beds planted the ensuing summer, making a calculation of the number of plants required for the purpose, and if the means for propagating them are not at hand, secure them by early order of some nurseryman or florist. Unless this is done, there will be some uncertainty in procuring them in just

such variety as may be desired at the time of planting.

Should the weather be severe, the chief operations will consist in giving additional protection and in covering half-hardy plants. A little attention to this will secure from harm many plants which have been the object of much care and expense. How censurable are the results of forgetfulness!

### The Greenhouse.

A day temperature of from 55 to 60 degrees will be sufficient during the present month. If this cannot be maintained without strong fires, 45 to 50 degrees and moderate fires will be sufficient, but with this low temperature a very small circulation of air will suffice. A much higher degree of heat we have found to hurry the beautiful camellias past their blooming period.

Hyacinths, tulips, &c., may now be introduced from the cold frames, provided their pots are well filled with roots—without the application of heat is vain.

Advantage should be taken of stormy weather to regulate and clean all the plants in the greenhouse. The foliage of oranges, camellias, and other smooth-leaved plants, can be washed with a sponge and clean water, and the dust upon rough-leaved plants, as geraniums, &c., can be removed by brushing them lightly with a soft brush. When the plants are cleaned, the pots should be washed and the surface of each replaced with a little fresh soil, and where they require it, the shoots neatly tied to small, neat stakes.

Where geraniums are grown too thick, thin out the weak shoots, and do not allow a dead or decayed leaf to be seen.

Plants in rooms should only receive water when in actual need of it, and only in sufficient quantity to recruit their strength, keeping them as near the glass as possible.

**M. Xavier Garenne** asserts that the barren lands in the south of France can be easily reclaimed by sowing nettles. He wonders that the world is so blind to the treasures which it possesses in the nettle. Young nettle tops are excellent eating for man; cattle like them and thrive on them; they are the best medicine which a broken-down horse can take. Besides, the plant has a value in commerce as a textile.

### On the Use of Chloroform and Sulphuric Ether in Veterinary Practice.

Written for the "American Farmer" by G. H. DADD, Baltimore, Md.

Probably most of your readers have some idea of the effects produced by the inhalation of chloroform and sulphuric ether, and therefore can appreciate the value of such agent; yet, perhaps, it is not generally known that equal parts of these agents afford much relief when applied to inflammatory sores, wounds, bruises and acute lameness. It sometimes happens that after a horse has been "clipped" he suffers excruciating torment from a disease known as acute irritation of the skin. This irritation is manifested by superficial heat and tenderness of the body, and the animal is unwilling to be handled. Some horses of the nervous and sanguine temperaments, whose skins are very sensitive, suffer from *general*, as well as local irritation, and for a time are apt to lose both appetite and flesh. In such cases I usually apply, once daily, to the surface of the body, a portion of the following:

Animal glycerine.....	2 ounces.
Sulphuric ether.....	3 ounces.
Water.....	4 ounces.

Give the animal an occasional "mash" of bran, into which stir a teaspoonful of powdered nitre. Under this kind of treatment the patient will rapidly improve.

Sulphuric ether and chloroform are now used, by *inhalation*, in severe cases of enlargement of the intestines, spasm and stricture of the same; also spasm at the neck of the bladder. It acts as a powerful antispasmodic on the muscular tissues of the body, and when these are once relaxed the spasm and pain attending it soon ceases. Should, however, the pain linger, I give one ounce tincture of *assa-fetida*, and administer enemas of warm water.

The following case may possibly prove instructive to the readers of this periodical:

The animal was suddenly attacked, in the street, with symptoms of acute abdominal pain, and, in consequence was hurried home to his stable. The moment he got there, he threw himself violently on the floor, commenced rolling, and grew excessively uneasy and irritable; he had a wild appearance about the eyes, and the membranes within the eyelids were highly congested; the nostrils were dilated; pulse about sixty per minute; extremities cold; and the body was bedewed with a chilly perspiration. He would paw the floor



and strike out with his fore feet as if he meant mischief; occasionally he would suddenly fall on the floor as if in convulsions, then roll on his back, curve his head towards the abdomen, the seat of pain, and then, as quick as thought, he would be on his legs again. The animal became so spiteful and unmanageable that I found it a matter of impossibility to get medicine down him; hence I procured some chloroform and sulphuric æther. So soon as he got on the floor, he was there held by the neck. I then saturated a sponge with a portion of the above and applied it to the nostrils, merely covering the sponge with a towel. The patient struggled violently at first to free himself from the parties that held him, but in the course of about a couple of minutes he became perfectly helpless and was fully ætherized. In this condition it would have been unsafe to drench the patient, so I kept him under the influence of the agent that had conquered him, for about half an hour, occasionally, however, removing the sponge, so that he might vitalize his blood by means of atmospheric air. After the animal had recovered from the effects of the æther I gave him an antispasmodic. He showed no more symptoms of pain, and was put to work on the next day.

This was a pure case of what is known as spasmodic colic, which differs from flatulent colic, inasmuch as the abdomen is not distended with gas, but is rather tucked up, as the saying is, in spasm; therefore the agent here recommended would not be indicated in flatulency—flatulent colic.

I recommend that when any important or painful operation is to be performed on the horse, that he be brought under the influence of æther, and I think that every humane man will coincide with me, that the same remarks ought to apply to all the inferior orders of creation.

### The Sugar Cane.

The sugar cane is one of a genus of many species of tall grasses. Like most cultivated plants, it consists of several permanent varieties, differing in size, in the color of the epidermis, and in the proportion of saccharine matter they contain. Like most of the cereals, the sugar cane has not been traced to its wild state. In its cultivated state it has been found in many independent places, often remote from each other, and bearing independent names.

Its geographical limits are nearly the same as those of cotton; that is, extending from the equator to about the 30th degree of latitude. Like cotton, its culture has been pushed up to the 40th degree, but even with less success, for the cane takes a year to arrive at maturity, and is therefore liable to be cut off by severe frosts. In what country the sugar cane was first cultivated it is out of our power to discover; but as far as we know, it has been immemorially cultivated in the tropical and subtropical parts of Hindostan, in the Hindu-Chinese countries, in the tropical and subtropical parts of China and Japan, in the Malay and Philippine Archipelagoes, and in the tropical islands of the Pacific. There is no evidence of its having been cultivated in any country west of the Indus. It was unknown as a wild plant in Australia and New Zealand, and is unquestionably an exotic in America. The Greeks and Romans knew nothing of sugar but as an article of trade. They were uncertain about the country which produced it, and ignorant of the plant which yielded it. The Arabs, on the contrary, brought the plant itself from India, with the Indian name of its produce, cultivated it in Syria, in Egypt, in Greece, in North Africa, in Spain, in Sicily, and in Southern Italy, manufacturing sugar from it in all these places. At what time the Arabs introduced the culture of the cane and the manufacture of sugar into Syria and Egypt is unknown, but it is ascertained that sugar was imported into Venice from the countries enumerated at the end of the tenth century. The Crusaders found the cane cultivated in Syria as early as the beginning of the twelfth century. In the year 1420, or seventy-two years before the discovery of America the Portuguese carried the sugar cane to Madeira. In the fifteenth century the Spaniards carried the cane and manufacture of sugar to the Canary Islands, from whence they were conveyed to tropical America and its islands. In 1503, or about eleven years after its discovery, the culture and manufacture were fully established in Hispaniola. Sugar was, however, an article of consumption in Western Europe long before the discovery of America. England was supplied from the emporia of Venice and Antwerp, and in the time of Shakspeare the name of the article was so familiar as already to have its secondary or figurative meaning, as in the expression, "sugared words."—*Mr. Craufurd on the Migration of plants.*

**Manure—Concentrated or Special, &c.**

This is a class of manures that are derived from a different source than the common stable or yard manure of the farm; and are valuable as aids, to stimulate or start an early growth, in connection with the ordinary farm manure. They should occupy—to use a pardonable illustration—the same, or similar, relation to the crops and soil, that the side dishes of the gentlemen's dinner table do to the eater of the dinner; very much more benefit accruing when used in conjunction with common manure, as generally they act as stimulants—their action not being so lasting as the other, and from their very nature not capable of producing the same action on the soil that ordinary farm manure does.

All manures of every description may be classed under two different heads or classes, as organic and inorganic—the former consisting of animal and vegetable substances, and the latter of mineral matter; each acts upon the soil in various ways, and on different soils differently. Inorganic manures furnish nourishment to plants, and also act mechanically and chemically upon the soil, the same as, although in somewhat different degree from, organic manures.

The good to be derived from a manure applied, depends largely upon the condition of the soil in regard to moisture, as well as its mechanical condition; for manures can only be received, as food for plants, in solution, and a suitable degree of moisture is essential to this; otherwise the manure remains inactive in the soil. Also, if the soil be filled with water, needing drainage, and cold, so that decomposition cannot proceed—or, if proceeding, very slow—plants derive little benefit from manure in the soil, however well filled. So if the mechanical condition be unfavorable, other circumstances being favorable, the soil should be fine and porous, so that the atmospheric action will be free among its particles, to warm and moisten them, thus aiding and assisting the putrefactive process of decaying substances of the soil, as also the chemical changes going on in the mineral matters of the soil.

We find a variety of fertilizers—or claimed as such—in the market, such as the various brands of guano, flour of bone, bone meal, superphosphate of lime, muriate of lime, sulphates and nitrates of potash, soda and ammonia, fish guano, poudrettes, etc. Without

doubt they all contain, more or less, of some principle which is valuable to the agriculturist; but too many of them do not furnish it in sufficient quantity to warrant the economical farmer in paying its market price. If he cannot depend upon the market, what is he to do? I believe we have heretofore pointed out resources sufficient, which, if taken full advantage of, will, with a small supplement from the market of such as is known and proved to be good, keep our farms improving, if properly applied, in connection with thorough culture and rotation, so as to produce maximum crops. I believe the farmer will find it more economical to expend the same amount in time and labor in preparing his own fertilizers, than to expend the money for those of the market.

**PREPARATION OF DOMESTIC POUURETTE.**

In the preparation of poudrette, would he pursue the course recommended in a former late article, he would have a better article than any the market affords and if he wishes to add more, let him collect—it can usually be had for the gathering—the night soil from the neighboring village or city, and compost it with muck, loam, soda, &c., under cover; it can be done principally during cold or winter weather, and this is better than much of the poudrette I have seen manufactured.

There is a manufactory—on a limited scale—of this article within a few miles of me, which has stood well where it has been used, and a few years since was pronounced good, after analysis by Prof. Johnson; but the mode—which is the usual plan pursued—of preparation, subjects it to making a somewhat variable article. The night soil is collected during the winter from the neighboring city, and drawn in close watertight boxes on wheels or runners, as the travelling may be, and stored in tanks sunk into the ground under cover, and the poudrette prepared during the following season. There is a suitable area in the open air, covered with a floor of boards and plank, on which the poudrette is prepared; this floor is covered with muck which has been previously dug from a neighboring bed, and laid to drain and become somewhat ameliorated, to the depth of two to four inches; over this is spread from buckets, the liquid night soil from the tanks—the majority stored being liquid—which is readily absorbed, after which it is turned over and stirred, when an-



other quantity of night soil is applied and worked as before. No means of testing the poudrette are used, except a certain rule of applying about so much of the soil to each spread of the muck. Now if a shower comes up, which is often the case, during the time of these manipulations, the fertilizing matter is washed out of this, being spread thin over so large an area. Sometimes a shower comes on just as the poudrette is ready for the screen; such poudrette is of little value—a reason of its variability in part, frequently. A farmer making his own will add a greater quantity of muck, &c., and keep the rains off, which will give it a greater value in amending the soil where applied. If he wishes it in less bulk, more concentrated, it can be easily made as heretofore described.

If a good bone phosphate is desired, it can be easily prepared and at a small expense, as this, for old pastures and many other purposes, makes one of the best fertilizers for the purpose—no one special manure can be best for all purposes and conditions. Woolen rags, waste hair and horns, make other valuable articles for special manures and the compost heap.

#### PREPARATION AND USE OF FISH GUANO.

Fish guano makes one of our most valuable fertilizers, according to its cost, that the market affords; it is made from the refuse of fish after having the oil expressed. Along the coast an immense quantity of fish of various kinds are caught, of little value except for their oil. In some sections a fish called the moss-bunker is caught, in almost unlimited quantities, and after steaming, they are pressed to extract the oil, and the refuse is put up in barrels, or sold in bulk in market from \$20 to \$25 per ton, depending upon distance of transportation and other local causes. This makes a very strong, heating fertilizer, and great care is needed in its use. It is best used after composting with other matter.

In 1866 we prepared some for manuring corn in the hill as follows: Some three or four weeks before using, having a quantity of yard manure, very coarse, mostly straw and corn butts, we took loam sods from under the fence and this manure, and made a pile, using about a solid yard of manure to three-fourths of a yard of sods, and one barrel of the guano to five or six yards of the other combined; laid first a layer of sods, and then of manure,

with a good sprinkling of the guano, terminating with sods. The sides were laid up as square and true as possible. In a few days the pile began to show heat by emitting steam, or smoke; after laying about two weeks the pile was pitched over and had so broken down it could be done very readily. It then lay till wanted to use in the hill, when it was applied at the rate of a shovelful to each hill, and covered as soon as convenient with about half an inch of soil, and the corn dropped on it and covered. The corn came up very evenly, showing a beautiful deep green color, which it held through the season, growing very thrifty. Although the land was in poor heart, the yield was a fair average for better land. I think if I were again to use a similar compost, I would add plaster to retain the ammonia, in a measure, that escapes during the fermentation.

This guano composted—one barrel with three solid yards of muck, or loam sods—makes an excellent fertilizer for rye, corn or any other crop, where it is applied broadcast, so far as I have had experience and observation; but, as remarked before, care must be used not to apply it too strong—if so, the crop is destroyed instead of being benefitted, *Country Gentleman.*

#### Turnips for Green Manure.

Joseph Harris, formerly of the *Genesee Farmer*, in a lecture on the cereals, which he delivered at New Haven, February, 1860, says: "I was once on the farm of Mr. Matthews, of Swathan, in Norfolk, England, when he called my attention to a barley stubble, and said that the crop of barley from that field averaged seventy-five bushels per acre. It had been heavily manured for turnips, and the crop was very large, but not having stock sufficient to eat them, the greater portion rotted on the ground, and were ploughed in, of course furnishing a large amount of manure, rich in ammonia."

As a further instance: It was our custom, when we harvested and housed our mangels and Swedish turnips, always to cut off and spread on the ground the leaves of both kinds of roots; we never allowed them to be eaten, because experience had shown that when the leaves and greens were ploughed in, a splendid crop of either wheat or barley (whichever was sown) was sure to follow. In England, the

turnips stand on the ground during the winter, and throw up high seed stalks in the spring; but the mangels must be housed, as the frost spoils them. The destruction of the turnip root in England on the soil is troublesome, owing to its vitality; but in Canada, if white turnips were sown, and left exposed to the winter frost, they, as well as mangels, would be entirely softened and destroyed, and by spring time be ready for immediate amalgamation with the soil.

I will now give a Canadian instance. Some years since, a Scottish farmer on one of the worn-out farms in the Niagara district, had on his farm one twenty-five acre field, that from continuous cropping was so reduced, that no grain whatever would grow on it.—He had no spare manure, as the farm would not grow straw enough to make it, but he was determined to thoroughly enrich this piece of land. He therefore prepared the field for mangels, planted them in drills, as well manured in the drill as he could manage, which was not much, but as the land had never before grown mangels they grew finely. He horse-hoed the roots, then, when the plants were large enough, he ran the cultivator across them in place of singling or pulling them out. He got a heavy crop of tolerably large roots, the whole of which were ploughed in, and the ground summer fallowed the following year, to kill the weeds. Fall wheat was then sown and produced *sixty bushels per acre*. The wheat was seeded down well with clover, and as soon as the clover was in flower the next year, it was ploughed under with a ball and chain. This treatment got the land into thorough heart, and with judicious management since, that field, even till now, continues the best on the farm.

It is a well-known fact that where sheep are not kept on mountainous or other extensive pasture, the English farmer neither makes, nor expects to make, any profit on the sheep over and above the manure which they furnish by consuming the roots and oil cake on the farm. If the sheep pay for the outgoings and interest on their purchase, and leave the farmer the manure free, he considers himself richly paid, and so he is. In Canada we do better than that, so far as buying and selling the sheep is concerned, but still the generality of farmers are content to keep but few sheep, and only those that they can winter through on pea straw, and some few roots, without

difficulty. Sheep, in any great number, cannot be fattened or indeed kept successfully in Canada through the winter, without being housed, and it is not one farm in five hundred where three hundred sheep can be housed during the winter.

In "The Canada Farmer," 16th April, 1866, P. Murison writes: "I would like to know if ploughing in a turnip crop is a good plan for manuring ground. I generally take in the turnips themselves, and plough in the leaves. Which is the best?"

"The Canada Farmer" answers: "If you have cattle to consume the roots, the latter is clearly the most judicious course."

Now I doubt this. I believe that the cattle and sheep take away more good than they leave behind. I was discussing the matter with a clever Englishman, who had been head laborer, or grieve, on a large English farm, where they made their own superphosphate; he had never discussed the idea of destroying turnips on the land before, and at first seemed to look on it as a horrible piece of extravagance; but when I told him the amount of solid constituents of the turnip, and how much of that must necessarily go into the sheep, and be carried away with them, perception dawned upon him, and he exclaimed in a sort of rapture, "yes, you are right; I see it now. If you were to take all the lambs which can be bred up on one hundred acres of turnips, and dissolve them with sulphuric acid, you would have a grand lot of superphosphate, enough to manure two such lots of turnips, and by feeding these turnips on the ground the sheep carry away the whole of it." Well, he was delighted at the discovery, and went away fully determined to grow and plough in all the turnips he could manage to get into the ground.

But few people are aware of the extent to which green crops are ploughed under in some parts of Canada. Thus, on the sandy land about what is known as the Long Point country, county of Norfolk, it is not unusual to plough in one, two, and even three sowings of buckwheat in the course of one season. The first sowing, possibly, will hardly cover the ground; the second is better, and the third is a full crop, the ground producing a good crop of wheat afterwards. But the season in that district is the longest in Canada, or otherwise they could not do as they do. When they can once raise a good crop of clover, they pre-

fer to plough it under as soon as it is in flower, and then sow fall wheat afterwards; without clover their land in the sandy portions would not repay the cost of cultivation.

On the plains in Haldimand and Hamilton, back of Cobourg, they carry out the same system to a great length. The land there was bare of trees except oak scrub; it was a poor sand, with a hard clay subsoil. For many years it was considered unfit for cultivation, until some of the Brantford plains people went down there. They began with buckwheat, following with clover and plaster, and soon showed the capabilities of the soil. By a gradual bringing up of the hard clay subsoil, they have greatly improved the land, and they now adopt the following course: The wheat stubbles are ploughed under in the fall, then, as soon as the frost is out of the ground, and at the earliest possible moment, they sow a good thick crop of peas; as soon as the peas are well in flower, they plough them under with a proper implement, and sow buckwheat thick; the buckwheat comes to a full crop, and is again ploughed under in the fall; next year spring wheat follows, and they are sure of a first-rate crop. Plenty of clover seed is sown with the spring wheat. The next year, the clover is ploughed under as soon as it is in bloom, and that same fall winter wheat is sown, with the certainty of a first-rate crop. The wheat is clovered down, stands for hay, and the second crop is ploughed under for spring grain. If the clover heads are ripe enough, the spring crop is self-seeded with the clover. They then plough for another crop of oats, barley or otherwise, as the necessity of the farm required. All the people there who have adopted this plan have become rich, and the land cannot be now purchased at any reasonable rate. These plain lands are very early, and the fall wheat is always ahead of the midge, and the quality of the grain is the very best in Canada; but the straw is short, and were it not for the green crops so ploughed under, manure would be out of the question. Plaster is freely used.

I have thus strung together all the information I could for the present obtain on this important subject. The success of the plan depends upon the length to which it is carried. One thing is quite clear—it cannot be carried too far. If it is found to make the wheat too gross, a crop of oats, barley, or rye

will reduce the redundancy of the growth of the wheat, and bring it within reason.

Now I want all the persons who may read this, to find fault with it, pitch into it right and left, hit hard, make fun of it, do anything but pass it over in silence. There may and must be some good in discussion, but silence helps no one, not even to the extent of making them think.—*Canada Farmer.*

### Making Manure.

Every farmer understands that he must do something to keep up the fertility of the soil, but very few have an idea how much more may be done than is done. All that can be made by stock, or that can be hauled from other stables, or bought in the shape of guano or phosphates, is cheerfully appropriated; but the actual making of manure is thought not to pay. We are led to these remarks by the following from one of our Eastern exchanges, which is very suggestive of the loss sustained by the farmer, without proposing how he can utilize these waste manures profitably. Our contemporary says:

It should be a cardinal principle with every farmer to economize his manure. Upon it depends his success, and, without it, his labors must to a very great extent be without profit, if not attended with absolute loss. If it is necessary to have the barn-yard on a hill side, it is equally necessary to have the lower side of it protected by a wall, or some arrangement by which the escape of liquid manure may be prevented. It is almost equally important to have a spout to convey rain water from the roof of the barn in some other direction than immediately through the barn-yard. It is bad enough that the manure heap should be exposed to the rains which fall directly upon it, without adding to it the droppings from the roof of the barn.

If such improvident farmers were to behold the actual value of the fertilizing material thus lost, rolling from their purses in the shape of dollars and cents, how energetically would they labor to prevent this waste. The loss of a single little gold dollar would stir them up to a greater activity than the direct waste of a hundred times that little dollar's value in the form of liquid manure. Year after year, silently, steadily, the golden streams are flowing from their purses. Tell them of their error, and they acknowledge it, but rarely does it

happen that being reminded of it in a friendly manner, they make a single effort to correct it.

How many are there who, after a lifetime of steady, unremitting toil, find themselves no richer in lands or money than when they began! They cannot explain the reason. Other causes may have led to such discouraging results, but if the drain of liquid manures from their barn-yards had been checked when they began farming, very many of these unsuccessful ones would have been as prosperous as their more provident neighbors.

Every farmer subscribes to this; he knows it well; but thinks he can do no better, "under the circumstances," than to let it go. He thinks, if he had conveniences, he would like to try the effects of liquid manure; but "every thing wants doing first," and it gets neglected; or, if he had any vegetable refuse at hand which he could haul to soak up the waste liquid, he would do that, but such waste he has not.

Now, one of the very best things to soak up manure water, and make into the best of manure, is common clay. It will pay any farmer well to haul clay to his barn-yard for its absorbing properties. When this cannot be had, the washing of road sides, cleaning of ditches, or anything that comes to hand, may be used instead. There are many other more complicated ways of "making manures" by chemical ingredients, but this is a simple one, which every one can understand. All it wants is the command of labor, and this is the main point in which so many farmers err. Not to "employ much," but to do all possible oneself, and let the "rest go," is the general plan. The farmer forgets that when he buys a ton of guano he has employed sailors, ship-owners, commission merchants, and many others, at a rate at which another hand on his farm, employed at nothing else but making manure, would have produced him immeasurably more value. It is not so much what is made, as what is saved, that leads to riches; and how to economize in manure, and yet have an abundance, is one of the great secrets of becoming a rich farmer.—*T. Meehan, in Forney's Press.*

John Yundt, of Lancaster, is the happy possessor of three penguin fowls. This variety of the feathered tribe is scarce. It differs from our common fowls in that it walks erect, resembling, when in motion, a dog standing on his hind legs.

#### High Prices of Improved Breeds of Sheep Well Sustained.

We copy the following interesting article from the English *Agricultural Gazette*, not only for its reference to the relative prices of wool and meat on the market value of sheep, but also as showing that a hundred dollars or more for a single sheep, here often spoken of as merely speculative, is there a regular market value.

It will be observed, several breeders are spoken of as each selling 50 or more, both of this season and last, at £15 to £26 each, at public sales or fairs. Improved breeds of sheep, as well as other stock, are much more generally diffused in England than here, and they have been accustomed to high prices much longer; but it would appear they still keep up, being based not on speculative but on intrinsic values. This should be a great encouragement to breeders here.

The high prices of single sheep (185 guineas,) is remarkable, when spoken of as being rather a common thing. The English policy (not English preaching,) to shut out by prohibitory taxes all foreign wools except to the amounts wanted beyond her own production, and to steadily foster and protect woolen manufactures on her own soil, thereby creating not only a constant demand for fleece, but for carcass, is worthy the attention both of our farmers and legislators. A similar steady policy here would also show more effectively that "the value of wool guides that of the animal which supplies it," and gives an impetus to sheep-breeding for the sake both of fleece and carcass.

"How much of the value of wool still guides that of the animal which supplies it, appears plainly enough, notwithstanding exceptional maxima, from a comparison of the prices which have ruled this year at autumnal ram sales, with those of 1866. When Bakewell undertook the improvement of the Leicester sheep, his attention was directed almost exclusively to its carcass—to the placing and the thickening of the flesh upon the choicest joints—and to the quickening of the fattening process: so that now the food which a well-bred sheep consumes is converted into mutton four or five times as fast as it was a century ago. The wool thus became a less important consideration than it used to be. The sheep was formerly not ripe till three or four years old, and three or four fleeces were obtained



for every carcass; but Bakewell ripened it at 44 months, after it has born but one. That fleece has of late been so much more valuable, however, than it was—that it has latterly regained somewhat of its former influence on the value of the animal; and the close-grained quality of Southdown mutton has not sufficed to hinder the depreciation due to its scanty, short-wooled coat; nor has the coarser character of the flesh of Cotswolds and Lincolns prevented an extraordinary rise in prices, due to their long and heavy fleece.

"When wool was worth half-a-crown a pound, and especially when certain wools became available as substitutes for that of the Alpaca in the manufacture of what are called Lustre goods, no wonder that those breeds which yield a fleece of 10 or 12 lbs. weight, and wool remarkable for its bright and lustrous character, acquired the highest reputation and command the highest prices in the market. And now that such wools have gone back to 16 and 18 pence per lb. no wonder that prices have this year very seriously receded.

"The Lincoln breed has exhibited this contrast more seriously than any other, just because its wool commanded the highest price last year. So heavy are Lincoln fleeces that in one instance, as Mr. J. A. Clarke told them at the Royal Agricultural College, 257 weight 117 tods, and in another 2829 fleeces weighed 1100 tods, or from 11 to 12½ lbs. per fleece; and so fine and bright is the wool, that 20 lbs. of it worked up with cotton, suffices to give the necessary lustre to 12 pieces of 'Alpaca' goods, each 42 yards in length! Certainly the owners of the best flocks have had reason to congratulate themselves on the reputation they had thus acquired. And thus it was that last year Mr. T. Kirkham sold 80 shearling rams for an average price of 16*l.* 14*s.* a-piece; 26 2-shear sheep at 14*l.* 9*s.* each; and 44 3-shear sheep at 26*l.* a-piece. One of these old sheep realised 100 guineas, having the previous year been let for 135*l.*, and, as a shearling the year before, for no less than 160*l.* To name two other ram sales of last Autumn:—Mr. Davy sold 135 shearlings at 12*l.* 9*s.* 6*d.* each, and Mr. Chaplin 40 at 15*l.* 6*s.* This year we do not hear of such enormous prices, Mr. Kirkham, of Wakeby, has indeed realised 12*l.* a-piece, and Mr. T. Casswell, of Pointon, sold 50 for no less than 15*l.* 10*s.* each; but at Petersburg Fair the demand was far be-

neath the supply, although there were only 582 sheep on the ground, against 867 in 1865.

"Turning to the Cotswold breed, standing next upon the scale for length and lustrous character of fleece, we find hardly such a reduction as the above at recent sales. Notwithstanding the lower value of Cotswold wool, prices have been generally well maintained. There is probably no breed which owes less to mere push and praise. Hardly ever represented at our annual shows as it ought to be, its merits in its own particular locality are the sole and safe foundation of its reputation; and the prices commanded by the large numbers sold each autumn on particular farms in Oxfordshire and Gloucestershire, as well as at sales by auction at our fairs, are the true and trustworthy indications of genuine and intrinsic worth.

"Last year Mr. W. Lane, of Broadfield, Northleach, sold 54 shearling rams, averaging 26½ 18*s.* each—the highest prices being respectively 210, 126, 122, and 100 guineas. Mr. Garne sold 51, at nearly 18*l.*, the highest price being 120 guineas. Mr. Fletcher's 50 fetched 15*l.* 5*s.* a-piece, the highest price being 53 guineas.

"This year, although no such excessive prices have been given for individual animals, yet many of the flocks have realised quite their usual average. Thus Mr. W. Lane has sold 50 shearling rams at 31*l.* 19*s.* 6*d.* each, the highest price being 127*l.*; Mr. C. Barton, of Fyfield, realised nearly 15*l.* for his 50; Mr. Fletcher's 50 fetched 14*l.* 15*s.* 9*d.* each; and Mr. R. Garne offered 52 sheep, four of which were only let for the season, and the whole realised 128*l.*, or nearly 25*l.* a-piece. The Cotswold men may be congratulated on holding their own, notwithstanding lower prices; and on presenting, in this respect, a most favorable contrast to their Lincolnshire rivals.

"If we now look at recent sales of Shropshire sheep, we shall find that prices have not been so well maintained. In this breed the fleece is not of that comparative importance that it is in Cotswolds and in Lincolns. Nevertheless the smaller price of wool amounts to a depreciation of 6*s.* or 8*s.* a head over a flock; and that must affect their value in the market.

"Last year, Mr. Hornley made 13 guineas a-piece of 40 shearling rams; Mr. C. R. Keeling made 16 guineas of 30; and Mr. Crane 19*l.* 5*s.* a-piece of 35. This year Mr. Keel-

ing.s sheep sold for 13*l*. 5*s*. a-piece; Mr. Horley made hardly so much; Mr. S. Byrd made 15*l*. 8*s*. a-piece of his,—the highest price realised for any one, and the highest price they say that any single sheep has ever made in Shropshire, being 86 guineas.

"Going north to Kelso, we find at the great sales of Leicester sheep which have just concluded there, that prices have hardly been so high as they were last autumn. Lord Polwarth's 20 averaged 25*l*. 13*s*., or 1*l*. 8*s*. less than it was last year. Mr. Torrance sold 40 for 7*l*. 16*s*. a-piece; last year the average was 9*l*. 4*s*. 7*d*. Miss Stark sold 34 for 22*l*. 14*s*. each from a flock which last year averaged 25*l*. 15*s*.

"Notwithstanding, however, the general depreciation when compared with last year's prices, the sums that are given for the best blood are enough to reward and to command the efforts of the ablest skill and judgment. Even Cheviots and other mountain sheep realise great prices. At the biennial sale of Mr. Brydon's rams, 'Craigpatrick,' a splendid 4-year old ram, made 185 guineas, the highest price, we presume, that has anywhere been given for a single sheep this year; 75*l*. 12*s*. was given for a 3-year old; 37*l*. 16*s*. was given for a 2-year old, and 13*l*. 10*s*. for shearlings. Certainly therefore, there is no lack of enterprise or stimulus to effort in this particular branch of agricultural improvement. We have not seen a report of many sales of Oxfordshire Downs, Mr. Treadwell, of Whichendon, Buckinghamshire, however, made an average of 14*l*. for 37 sheep the other day, many of them fetching 20 guineas each, which is quite as high an average price as the breed generally commands."—*Practical Farmer*.

☛ The London *Globe* says a man named Charlier thinks the notion that horses need shoes entirely wrong. He himself does not cut a horse's hoof. He merely protects it against violent blows and accidents, and against the wear and tear of the Paris pavement, by placing it in a thin circle of iron, which wards it from danger without compressing it. In this way the horse stands upon a healthy member instead of upon one which is being constantly wounded by the iron and knife of the smith. Besides the economy of this reform, it is expected to make hoof diseases infrequent.

### Sound Potatoes.

The wide-spread destruction of the potato crop, caused by the almost unprecedented rains of July and August of this year, amounting to millions of bushels, has naturally excited the earnest attention of the agricultural mind, and the question is anxiously asked on all hands, "how shall we escape the rot?" The potato disease has manifested itself, with nearly equal virulence and fatality, on all soils and under all modes of culture, throughout the region visited by the great rain-belt. No locality has been exempt from its ravages, and no panacea been found for its prevention, or cure. It becomes, therefore, a question of vital interest, not merely to the professional potato-grower, but to every farmer and every consumer of this now indispensable root—the fourth crop in value in the national soil products—what varieties to plant, with a reasonable prospect of a fair crop and exemption from disease.

In New England the standard sorts, the Carter, Jackson White, Dayis, and Colebrook seedlings, have all failed to resist the rot; in New York, New Jersey, Pennsylvania, and Southward, the kinds most popular and generally planted, the Peach-Blow, Mercer, Dykeman, White-Sprout, Prince Albert, Pinkeye, Jersey Monitor (synonymous with Shaker Russet and its pseudonym Shakers' *Fancy*!), have, with rare exceptions in favored localities, suffered equally from the rot with their Northern relatives. Some instances there are of entire exemption from disease, even of the Monitor, the most susceptible of all to its influence, but they are so rare as to be barely worth mentioning; nor is there anything in soil or culture in these cases that can enlighten us on the question "how to obtain, in seasons of potato rot, a sound crop of the standard popular kinds?"

We must turn, then, to an examination of the merits of those varieties which have, generally escaped the diseasing influence of the long, sunless, rainy season of 1867. From careful personal observation, verbal and written correspondence with friends, and assiduous reading of the agricultural press, I am satisfied that, taking as a *class*, the Goodrich seedlings more fully meet our requirements than any other. Not that they have proved invariably sound, but that with them health has been the rule and disease the exception—which is, the



reverse of our experience with all the older varieties.

Mr. Goodrich raised over 16,000 seedling potatoes, of which number less than 10 sorts have proved of value to the general cultivator. They are the Cuzco, raised from the seed of the Wild Peruvian, and its progeny the Early Goodrich and Harison; the Garnet Chili, from seed of the Rough Purple Chili, and its progeny the Calico; lastly the Pinkeye Rustycoat, from seed of the western Red, and its progeny the Gleason.

In addition to these is the beautiful potato, the *Early Rose*, not raised by Mr. Goodrich, but obtained from seed of the Garnet Chili in 1861, by Mr. Albert Bresec, of Vermont, to which fuller references will presently be made.

Foremost among the well tasted of these sorts is the Early Goodrich, which is, this year, of unsurpassed quality, abundantly productive, a handsome market variety, next in earliness to the White Sprout, an admirable keeper, and as to health and soundness unequalled. Of the others, which are all winter sorts, the Harison, newly introduced, is the most productive and handsome, generally sound, and of medium but improving quality. Next is the Cuzco, also a great bearer, and this season of good quality, and growing in popularity.

The Garnet Chili and Calico are inferior in productiveness to the preceding, but are fair croppers, and generally sound; the Calico is very delicate in flavor, fully equal to Mercer.

The Pinkeye Rustycoat and Gleason are much prized by many growers for their truly excellent quality, productiveness and long keeping.

The Early Rose, although raised in 1861, and well tested by its originator, in Vermont, and by D. S. Heffron, of Utica, N. Y., who is the proprietor of the entire stock, is yet untried with us. It is the most promising, in general appearance and character, and certainly the best in quality, of any potato I have ever known. Mr. H., of whom I can confidently speak as one of the most conscientious cultivators in the land, assures me that thus far it has proved "as sound as any that Mr. Goodrich has ever raised, *ten days earlier* than the Early Goodrich, more productive and with fewer small tubers than almost any other kind."

Should it fully bear out this description in our latitude, it will be the greatest boon to the

farmer and to the community that this generation has yet witnessed. The fact that it is a seedling of the Garnet Chili, and has the Goodrich "strain of blood" in its veins, is greatly in its favor.

In conclusion, though not entirely apposite to the caption of this article, yet of interest to every one who either grows or eats a potato, I offer the following extract, from the agricultural columns of the *Weekly Press*, edited by our friend Thomas Meehan, who assisted at a "boiling match" of potatoes instigated by the writer hereof, and whose notes accorded with the general judgment of the committee:

	Color.	Texture.	Flavor.	Total.
Early Goodrich.....	2	2	1	5
White Sprout.....	2	3	3	8
Felten'd Early.....	3	3	3	9
Jerusalem.....	2	3	2	7
Early Rose.....	3	1	1	5
Peach Blow.....	2	1	3	6
Garnet Chili.....	2	2	2	6
Prince Albert.....	3	3	4	10
Calico.....	3	3	3	9
Gleason.....	2	2	2	6
Carter.....	2	3	2	7
Harison.....	3	3	3	9
Cuzco.....	3	2	1	6
Andes.....	3	2	2	7
Jackson White.....	2	3	2	7

"From this it will be seen that Early Rose and Early Goodrich head the list; but as color is quite secondary to either flavor or texture the Early Rose should be considered best. The Peach-Blow, by the above would appear to be quite as mealy as the Early Rose, but its yellow color and earthy taste are objectionable to many. The Cuzco is also pretty well flavored, but in the present instance it was of a leaden hue. The Gleason presents a fair average figure; but, on analyzing its parts, it is found as much owing to the absence of the worst qualities as to the possession of good ones. On the whole it is 'neither one thing nor the other.'—*Practical Farmer.*

There is a tree standing on the farm of Levi Graves, in Leverett Mass., that rises from the ground by two distinct trunks, standing a foot apart. Each trunk is more than a foot in diameter, and straight and well formed. They run up twenty feet or more, and then join in a solid single trunk, forming a beautiful top like any single tree.

It is reported that an agricultural society somewhere in the State of New York, offers larger premiums for butter and cheese than it does for horse-racing.—*Ex.*

That society must be made up of inveterate old fogies.—*Wis. Farmer.*

### Rot and Mildew in Grapes.

Remarks on Mildew, &c., by Wm. Saunders, Washington, D. C., before National Pomological Society.

In a communication which I had the honor of submitting to this society in 1860, the causes and effects of mildew on the grape were treated somewhat at length. Subsequent observations have only tended to confirm the views expressed at that time. It has, therefore, appeared to me unnecessary to repeat the details already embodied in your proceeding, at the same time a brief resume of what has been learned may be suggestive and useful for future reference.

There are various forms of mildew to be seen on the leaves of the grape, although for present distinction they may be divided into two classes, viz: those that make their appearance on the under surface of the leaf, and those which develop more particularly on the upper surface.

Both classes of mildew are mainly, if not wholly, the result of atmospheric changes, more particularly those of a hygrometric character.

The most fatal form of grape mildew is that species which attacks the under surface of the foliage, and is known by the name of leaf-blight, sun-scald, and blasted leaf. Its presence is first indicated by a slight yellowish discoloration on the upper surface of the leaf, which gradually increases until the part affected becomes brown. By turning over the leaf the fungus will be observed spreading and destroying the vitality of the tissue; the leaves ultimately wither, crumble, and drop off.

This form of mildew appears to be produced by continued dampness, more particularly when heavy dews, or occasional rains, accompanied by dull or cloudy weather, immediately follow a period of dryness and bright sunshine; it also spreads with greatest rapidity, other circumstances being favorable. In positions where evaporation is least active.

All varieties of grapes having downy foliage are more subject to this form of mildew than are those with smooth or shining leaves.

The second general form of grape mildew is that seen on the upper surface of the leaves, giving them an appearance similar to having been dusted with fine flour, and which may be brushed off without any apparent marks of injury. Occasionally this will be observed on the berries in early summer, and may have

some connection with the rot. Its effects are mainly those of retarding growth, and the fruit, and even young shoots in extreme cases, crack open, as is seen in the cracking of the fruit of some varieties of the pear. The debilitating effects of dry air and dry soil seem to render vegetation liable to its attacks and favorable to its extension.

This form of mildew is less frequent and seemingly not so injurious on the native species of grapes as that previously mentioned, and when treating on preventive, the first described form will be more particularly kept in view.

The rot in the berry is perhaps the most fatal disease in the grape, and one whose origin is yet obscure. It is undoubtedly a fungoid growth; from which fact we may deduce its origin to a disorganization of the plant—a weakened vitality, proceeding from one or various causes, either immediate or remote from its appearance. I purposely refrain from enumerating any of the many theories that have been promulgated regarding this disease, further than to mention that it has been noted that where it does exist it is most persistent and fatal on plants growing in soils rich in organic matter, showing that a condition favorable to luxuriant growth of plant is favorable to the extension of this disease. It is also well known that, in the case of foreign grapes grown in glass structures, where all the circumstances of culture are, in a great degree, artificial, the rot is prevented in varieties subject to that disease by withholding water during the period of swelling and ripening of the fruit.

It is probable that we have not sufficiently systematized observations on this disease to enable us to arrive at an intelligent conclusion as to its cause. Diseases of this nature are very often the result of causes affecting the plant many months previous to the visible development of the malady; therefore reports upon the condition of the soil or atmosphere at the time of its greatest severity should not hold too prominent a place in our conclusions with reference to its origin.

Assuming these observations to be in the main correct, we deduce from them various practical suggestions, some of which may be briefly mentioned.

So far as our present knowledge extends, the constitution of the soil, either in its chemical or physical condition, or as affected in any

degree by culture, exercises but little, if any, influence either in promoting or preventing mildew on the leaf; but, keeping in view the supposition that mildew is the result of weakened vitality, it is within the bounds of probability that a system of special culture may be reached which will fortify the plant against injury from such attacks.

The only preventives known are those of shelter from heavy dews and rains, either by mechanical or natural appliances, and applications of sulphur and other antidotes to the foliage.

Experiments have proved that leaf-blight may be prevented by sheltering the foliage. How far expedients for this purpose can be profitably employed is a question for grape-growers to decide. The simplest form of covering is a board-covered trellis, and for amateur culture or private family use, the expense of such coverings is not worthy of consideration.

It is also well known that sulphur, applied occasionally during the period of growth, will prevent mildew; as a simple statement, this has some value, but it is not sufficiently definite to enable the vine-grower to determine the extent or frequency of the applications necessary to secure a crop. Some seasons occur during which there is no necessity to apply remedies, and there is no periodical certainty in any as to when mildew may appear. Could we foresee its approach, so that preventive applications might be made at the proper time, and only at that time, the practice would then be reduced to a definite system, and be proportionately valuable.

This knowledge can be reached only by a series of exact hygrometric observations made in various grape-growing localities, under the general supervision of an experienced physiologist.

It may be well to remark that the system of training hardy varieties on the top of the trellis, for the purpose of sheltering the more tender and valuable varieties below, has been suggested, and, to a certain extent, acted upon with favorable results.

The ultimate effect of mildew is to check and retard growth and thereby prevent proper maturity of the wood. For all cultural purposes it is sufficiently accurate to assume that the hardness of a grape is simply its immunity from mildew. When a grape is said to be too tender for our winters, we may safely conclude that, in other words, it is so subject

to mildew that the growth fails to reach proper maturity. Fruit growers, above all others, should learn to call things by their proper names. I have reason to believe that all the foreign wine graper would withstand our winters if not checked by mildew during growth. I have exposed matured growths of Black Hamburg, Muscat of Alexandria, Golden Chasselas, the Frontignans, and other foreign varieties, to a frost several degrees below zero without being injured. And all of our native varieties, excepting, of course, strictly Southern species, are sufficiently hardy to stand our ordinary winters, if kept in health during the summer. It is important to keep this in view.

I have already remarked that downy-leaved grapes are more subject to mildew than those whose leaves are smooth.

The Fox family of grapes (*Vitis Labrusca*), from which most of our popular cultivated varieties have been produced, such as the Isabella, Catawba, Diana, Rebecca, Concord, Iona, Ives' Seedling, &c., are more subject both to mildew and rot than varieties of the summer grape (*Vitis Æstivalis*) or the frost grape, (*Vitis Cordifolia*.) I have long since expressed my conviction that more attention should be given to the improvement of the two last named species for wine grapes than has hitherto been done. For northern latitudes the *Vitis Cordifolia*, of which the Clinton is a familiar example, is worthy of particular attention, not only on account of its intrinsic merits as a wine, and even as a table grape, but as a representative of a class of great hardihood and freedom from disease. Occasionally we may observe mildew on the Clinton, on the upper surface of the foliage, but I have never seen it obtain sufficiently so as to materially affect growth, and rot in the berry I have never seen. The leaf of this variety is green and smooth on both surfaces. For more southern climates, the varieties of *Vitis Æstivalis* will be suitable; among these may be mentioned Norton's Virginia Seedling, Herbermont, Lenoir, and Cynthiana.

These comprise some of our best wine-grapes, but require a longer season to attain maturity than many of the Fox family, and will not reach perfection at the north except in favorable seasons. Some varieties of this class are also our finest table grapes. The leaf of this species is but slightly downy.

Some of the varieties of *Vitis Labrusca* are the most useful in cultivation; the Concord

has, for many years, attained a supremacy in this respect; the Ives' Seedling has recently presented claims which are beginning to be acknowledged; the Hartford Prolific is one of the earliest varieties, and largely cultivated as such; but all of these are popular, simply because they are hardier than otherwise superior varieties of their class; were it not so, we should all most certainly prefer the Adirondack, the earliest of all good grapes, the Catawba, so well known for its excellent qualities, the Iona, the highest flavored grape in the list, the Rebecca and Maxatawny, white grapes that, when in perfection, may be compared to a Golden Chasselas, as also several of Rogers' Hybrids, which practically may be referred to this class for their main characteristics of growth and habit.

This section of our native grapes has received more attention than any of the others; the size of the berries and fine appearance of the bunches have encouraged a disposition to improvement, and many of the later seedlings are of superior quality, but they are more subject to disease than many others of the American species. Even in their native habits the wild fox grapes of the woods will be found suffering from the same rot and mildew so prevalent among their more civilized descendants. And here, I would remark, that a wide field lies open for improving our native grapes, a field that has scarcely been trod upon. I allude to the hybridization of the native species with each other, in contradistinction to the use of the foreign grape for this purpose, which only tends to perpetuate the diseases to which the foreign grape is liable in this climate. We have in the Delaware grape an example of what may be expected from this combination of American species—a hybrid between the *Vitis Labrusca* and *Vitis Estavalis*; it partakes of the tendency to leaf-mildew of the former, the freedom from rot in the berry of the latter, and a fruit superior to both. Great results await us in this direction. Place a berry having the size and fine appearance of the Concord or the Union Village on the bunch of Norton's Virginia Seedling or the Devereaux, combining all their good qualities, and there is nothing Quixotic in the expectation of realizing a fruit that will equal, in its magnificent dimensions, the famed grape of Syria.

With regard to the origin of fungoid diseases, I have designedly refrained from ex-

pressing any emphatic opinion; this question is still a subject of inquiry with botanists—whether it is a cause or consequence of disease. My observations lead me to the conclusion that it is both; one thing, however, is certain, that fruit-growers must sooner or later recognize in fungoid growths their greatest enemy to success.

As closely connected with this subject, it may not be out of place here to mention a circumstance that deeply concerns pomologists as a body. I allude to the exceedingly vague and loose, if not untruthful expressions, constantly used in the description of new grapes. I question whether amongst all the numerous new varieties that have been introduced during the past fifteen years, any one of them has been described without special mention having been made of its entire exemption from mildew. It is charitable to suppose that this may be true in certain localities, but it is not the whole truth; and to presume that any one variety of fruit, grain, or vegetable esculent can be found to adapt itself equally well over a country whose climates extend from the frigid to the torrid zones, is utterly inconsistent with our knowledge of vegetable economy.

THE TEETH OF THE HORSE.—A horse has forty teeth—twenty-four double teeth, or grinders, four tushes, or single file teeth, and twelve front teeth, called gatherers. As a general thing, mares have no tushes. Between two and three years old, the colt sheds his four middle teeth—two above and two below. After three years old two other teeth are changed, one on each side of those formerly shed; he now has eight colt's teeth, and eight horse's teeth; when four years of age he cuts four new teeth. At five years old the horse sheds his remaining colt's teeth, four in number, when his tushes appear. At six years of age his tushes are up, appearing white, small and sharp, while a small circle of young growing teeth is observable. The mouth is now complete. At eight years of age the teeth have filled up, the horse is aged, and his mouth is said to be full.

ED. Lee, of Knox county, Tennessee, writes to the *Country Gentleman* that fair timbered mountain land can there be bought in large tracts at from \$50 to \$100 per thousand acres—or five to ten cents per acre.



☞ We have frequently urged upon our readers the "small industries," which will produce large yields, with comparatively small outlay. Our land in the blue grass section is too high-priced for any money to be made on the cereals or mean stock. Lands worth one-tenth of ours will rival our best land in corn and grain. We must either raise thoroughbred stock or turn our attention to the culture of those things, which require fertile soil and careful attention. We must make our own cheese and export quantities of it. We must plant more fruit trees—cultivate more land in gardens; try to raise hops, turn attention to the poultry yard; make the bees our laborers. Our farmers must cultivate fewer acres and in better style. They really are ignorant of the vast wealth contained in their lands.

We give the following extract from a New Jersey paper, quoted in De Bow's Review, as an evidence of how much profit may be in a small crop:

"It will be borne in mind that the savanna and bottom, or boggy lands of New Jersey, lying in Ocean, Burlington, Atlantic, Camden and Cape May counties, are the best known for the culture of the cranberry. It is also generally stated that those of Ocean and Burlington counties are the best in New Jersey, those in the southern section of the State, for some reason, not being as productive as in the counties referred to. The lands used for its culture are the soft, spongy lands. Before the introduction of cranberry culture, they were comparatively valueless, now they range in price from \$25 to \$100 per acre.

Those lands having a running stream of water are the most valuable, as it is of importance to be able to flood the grounds during the late fall and winter, in order to kill grass and vermin, and to protect the vines from frost. In dry summers, it is necessary in order to preserve the moisture without flooding the land to fill the lateral ditches with water.—This will moisten the ground sufficiently. To flood the bog in summer will involve the scalding of the vines.

To prepare for wines, the tree and brush are removed, the land turned, and the roots grubbed out. Lateral ditches are dug from the main stream, dividing the ground into square plats, and the plats are sufficiently raised at the centre to cause the rains to flow off.

The yield of berries is astonishing. A bog of a few acres which had not received a par-

ticle of care since the vines were planted, yielded this year one hundred bushels to the acre. Another of six acres, belonging to Mr. William Allen, which yielded this year its first full crop, produces about two hundred bushels to the acre. These figures seem astonishing, but one has only to see the bog, and notice the perfect mass of fruit to have all doubts removed. The cranberry crop of a single township in Ocean county, will reach this year 10,000 bushels. The value of these lands when in vines is something remarkable. The Messrs. Gowdy has refused \$1,250 per acre, cash for a bog, the vines of which are two and three years old.

As soon as the bog are in vines they are valued at \$700 to \$1,000 per acre; \$1,000 per acre has been repeatedly refused for bogs which have been in vines two or three years. The reason for this is obvious. The lowest estimate for all bearing bog, is 100 bushels per acre. The average is from 50 to 160 bushels above this. Take 100 bushels for an average yield. The cost of picking is 50 cents per bushel. The cost of cultivating, after second year, will not average \$5 per acre. The present wholesale price of cranberries is \$5 per bushel, or a net yield of \$450 per acre, at the lowest possible estimate per year; or an interest of 45 per cent, per year on an estimated value of \$1,000 per acre.

But the average is above this. The yield, when the vines are three years old, and for a long series of years, will almost certainly reach 150 bushels per acre. The cranberry is not like strawberries, peaches, etc., perishable fruit, but can be easily kept for a year. In the spring the price often reaches \$10 per bushel. Take these figures, and you have a return of say 1,400 net per acre per year, an interest of 50 per cent, on \$1,000.

It is not possible that the market can ever be glutted with this fruit. The small area which can be employed in this culture, and the fact that the European market has been opened to its sale, and that the berries are now used for dyeing purposes, forbids the thoughts that they can fail to command a good price continually. But there is a wide margin for falling off in price, and large returns secured."—*Lexington Observer*

☞ A machine which will remove the pits from 100 cherries in a minute, has been invented in Germany.

# The American Farmer.

Baltimore, January 1, 1868.

## TERMS OF THE AMERICAN FARMER.

SUBSCRIPTION TWO DOLLARS PER ANNUM.

### RATES OF ADVERTISING:

Eight lines of small type constitute a square.

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Half Page.....	15.00	35.00	60.00	110.00
One Page.....	25.00	60.00	110.00	200.00

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WORTHINGTON & LEWIS.

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Near Baltimore Street,

BALTIMORE.

NEW YEAR.—We offer our friends the compliments of the season, and our heartiest wishes that as the old year has passed away, the evil it has brought to so many will pass with it, and that brighter hopes and happier and more prosperous times may come with the coming year.

NEW DRESS.—The Farmer is indebted to its enterprising Printer, James Young, for a new dress suitable to the New Year season. The type is from the foundry of Ryan & Ricketts, 114 West Baltimore street.

### The Farmer.

We are not in the habit of making large professions of what we propose to do, or of taking special pains to puff the *Farmer* into notice. We hope to commend it to a sure and safe patronage by making it deserve it. We have taken much pains, however, to have the renewal of its publication made known to all its former subscribers, and at great loss, owing chiefly to the changes, removals, deaths and ruin among our Southern subscribers. We give the following letter, just received, as a suggestion to our friends who are getting the *Farmer*, that they may do us a favour even by letting old subscribers know that it has been in renewed existence for now eighteen months. The letter alluded to is as follows:

ABBEVILLE, VA., Dec. 16, 1867.

Editors of *American Farmer*:

I have recently understood that the *American Farmer*—which was published before the war by N. B. Worthington, and suspended

during the rebellion, so called—has again commenced publication. If it is still being published by Mr. Worthington, you will please send me a specimen copy, and if conducted in its former style, and devoted to the cause of agriculture and a white man's government, I will become a permanent subscriber.

Yours, very respt'y.

LIST OF SPRING SEEDS.—We have from Geo. A. Deitz, Chambersburg, Pa., his list of varieties and prices of spring seeds for 1868. Mr. D. has made a specialty of the business of procuring and distributing the best varieties of farm and garden seeds. See advertisement.

GEORGE PERRY & SON, of Georgetown Nursery, Georgetown, Conn., have sent us their trade list of nursery stock. See advertisement.

PUBLIC ROADS.—One of the best signs of the times for Maryland agriculture is the spirit just now aroused in the matter of improving our road system, and having a better administration of that which exists. A large meeting of landholders has been held in Baltimore county, and in Harford and other counties. As in all matters of public interest our people are moved by impulses, we hope the ball now set in motion will roll through the State, and lead to a thorough revolution. The condition of our public roads is a crying evil, injurious to our interests and reproachful to our civilization.

### Literary Notices.

THE SOUTHERN HOME JOURNAL.—We failed to notice last month the appearance in November of this elegant Baltimore weekly, published by J. Y. Slater & Co., 293 W. Baltimore street. The contributors to the journal are some of the best known literary men of the country, and we heartily commend it to our friends who want a good family weekly.

THE EDINBURGH REVIEW for October, '67. No. CCLVIII.—The American reprint of this famous old Review we receive regularly from the Leonard Scott Publishing Co., 140 Fulton street, New York.

Contents of the No. The Napoleon Correspondence. Codification. The Christians of Madagascar. Trades' Unions. Miss Edge-



worth, her Life and Writings. Amendment of the Anglican Rubric. The late Thomas Drummond. The Session and its Sequel.

Also BLACKWOOD'S for November, with Brownlows No. XI. At the Alps again.—Conversation. Linda Tressel, Part II, Reynolds and the Portrait Painters of the last century. Cornelius O'Dowd. Women in the Middle Ages. The Impending Crisis in America.

RICHMOND ECLECTIC.—We notice that this excellent publication is to be removed to Baltimore, and some change of name is to be made, but no material change in management and character.

☞ We are obliged to omit many literary notices for want of room.

MAUPAY, HACKER & Co's CALENDER AND SEED MANUAL.—A very convenient and useful illustrated calender for 1868, with notes and directions adapted to Northern and Southern States, may be had on application to the proprietors, Nos. 803 and 805 Market street, Philadelphia.

SOUTHERN PLANTER.—We see with pleasure that the Richmond Farmer, published by Elliott & Shields, is to be merged into our good friend, the Planter, which will be known hereafter as the SOUTHERN PLANTER AND FARMER. We hope and do not doubt, our esteemed contemporary will be much profited by this union of heretofore divided interests. It will be observed that we receive subscriptions for the Planter at club rates.

CREDITS.—We crave indulgence of whom it may concern, for the occasional failure to give proper credit for matter selected from contemporaries. This often happens, we believe, with those who are most careful in this respect. In December we remark the well-prepared article headed "*The Harvest of 1867 throughout the world*," on which there does not appear any indication of its source. Our impression is that the credit is due to that able commercial paper the *U. S. Economist* of New York.

Agricultural Society in Carroll Co.—We note with pleasure the inauguration of an Agricultural society in Carroll county, following the lead of Washington and Frederick.

### The Commissioner of Agriculture.

The name of Col. Horace Capron is not a new one to the pages of the *American Farmer*. Twenty years ago he was one of the most enterprising and thorough farmers of Maryland. In the early Exhibitions of the State Agricultural Society his splendid herd of Shorthorns, with that of the late Charles B. Calvert, and the long famous Devons of George Patterson, Esq., made the chief attractions of the show. His farming operations around Laurel, where hundreds of acres of poverty stricken land were brought to a condition of fertility equal to that of the best lands of the State, were in the mouth of every one who interested himself in Maryland agriculture. They constituted indeed one of the chief features of that upward movement in the agriculture of the State, which exhibited itself in the ten fold increase of blooded stock at later shows, and in the greatly increased value of our lands.

One of the most interesting and valuable agricultural discussions which have ever been published in this country, was that which took place in the pages of the *American Farmer*, through many months, between Col. Capron on the one hand, in defence of his system of high-farming and liberal expenditure, and Col. Wilson M. Carey, of Baltimore Co., attacking that system, and maintaining the wisdom of a more slow and cautious policy. A number of agricultural writers were drawn incidentally into the discussion, and gave additional life and interest to it. We shall, perhaps, at an early time give a sketch of this controversy.

We anticipate, from our personal knowledge of Col. Capron's peculiar qualifications, a successful administration of this important office, and in the meantime bespeak for him the confidence of the friends of agriculture.

☞ Winthrop W. Chenery, Esq., a well known importer and breeder of blooded stock, favours us with a Catalogue of his Highland Stock Farm, Belmont, Middlesex Co., Mass. Among his breeding stock for the present season are a highly-bred trotting stallion "Belmont Eclipse," thorough bred stallion "Highland Chief," imported Holstein or Dutch bull "Van Tromp," imported Texel or "Mouton Flandrin" ram "Rip Van Winkle," imported Angora (shawl) buck "Grand Turk."

*The Farmer's Almanac* for 1868, adapted to latitude 40 and meridian of Baltimore, by J. R. Ruth & Co. See advertisement.

*Central Industrial Association of Mississippi.*—This association, as we learn from proceedings published in the *Weekly Clarion* of Jackson, Miss., was permanently organized at that place by the adoption of a constitution, and election of officers.

The object of the association, as the first article of the constitution indicates, is "to encourage, develop and improve the Agriculture, Horticulture, and the Manufacturing and Mechanic Arts of the State."

We remark with pleasure the election of our old friend, Dr. John O. Wharton, as President of this association. A year ago he left Maryland to reside in Mississippi, and it is most agreeable to the many friends he left in Maryland to see this evidence of the esteem in which he is held among the leading men of his adopted State.

The report says that interesting addresses were delivered by the President, Dr. Wharton, General Wirt Adams, Col. C. E. Hooker, and Major E. Barksdale.

NEW VARIETIES OF WHEAT.—A friend in Clarke Co., Va., says: "I think the great want in this country is a new variety of wheat. The Lancaster and bearded wheat much sown, yields but poorly for the straw, while the Boughton wheat, from its liability to disease and fly, is growing more and more into disuse."

We shall be glad to hear from correspondents on the subject of the varieties of wheat sown. The white wheats have gone much out of use within some years among Maryland wheat growers. They were formerly thought much the most profitable on the better class of wheat lands.

*Tan Bark.* The same correspondent inquires, "Can you tell me whether half-rotten tan bark has any value as a fertilizer?" We think it has not, until burned to ashes or charred and thrown into a compost heap.

Seed Enough.

A great mistake, very commonly made, is the not sowing grass seed enough to stock our grounds and provide against casualties. In various quarters we have noticed recently that three or four quarts of timothy seed are suggested, while a gallon of cloverseed seems to be the maximum idea. The consequence of such a seeding of timothy is, that it is never expected to reap a full crop of hay before the third season after sowing, and in case of ac-

cident to the clover, as not seldom occurs, the ground is nearly bare for one or two seasons. In a large portion of Maryland the clover a few year's ago was a great failure, the best clover lands being almost bare during the following summer. We find that failures are not uncommon even in the highly fertile lands of Chester county, Pennsylvania, for a writer familiar with them says: "While timothy and clover certainly embody more qualities advantageous to the farmer than any of the other grasses, yet of late the uncertainty of their growth, the falling off in their productiveness, together with the necessity for having a more steady and uniform supply of green food during the grazing season, have instituted an inquiry and search for a substitute."

This inquiry being so far without success, the writer proposes to remedy the uncertainty attending these favorite crops by certain suggestions as to their proper management, in which we do not propose now to follow him.

It is clear that if a reliable crop of timothy is wanted early after seeding, there should be seed enough put on the ground to occupy it well in case of clover failing. The quantity should be not less than a peck of well cleaned seed to the acre. Other seeds not failing, and the season favoring, less than half this quantity may be sufficient, but after incurring all the expense of preparing and manuring the ground, why should we run the risk of loss of crop for the sake of the price of a few quarts more of seed?

Of cloverseed we know that four quarts of good seed is quite enough, under favorable circumstances; but who would not incur the expense of four more for the sake of insuring so valuable a crop?

One of the most liberal, and, for that reason, most successful farmers we have known, used to say that, in beginning his farming operations, he ascertained the quantities of the various grassseeds sown by the best farmers around him, and then sowed twice as much per acre. He resolved that in so very important a matter there must be no such word as fail, and, so far as we know, he never did fail.

*Cresylic Soaps.*—We call attention to the advertisement of these Soaps. Their value as disinfectants, as protection against insects, and for preventing and curing skin diseases of sheep and other animals, were spoken of in our December number in the article of Mr. Affleck, of Texas.

### The More Lime the More Manure.

The old saying that "lime makes a rich father and poor son" conveys, we think, a serious error, though the idea it is based upon be a correct one. This is that lime, while it makes the soil more productive in crops at first, will finally leave it barren if its use be continued; that it will force the ground, so to speak, to its utmost power of production, and finally leave it powerless—exhausted of the elements of plant food. This might be, in a great measure, the case, if we assume that everything made upon the farm is carried off from it, as is only possible under very bad management.

But let it be remembered that in any proper use of lime, the first effect is a great increase of grass crops, filling the ground with masses of roots, estimated sometimes to be equal to the whole crop above ground. This alone makes a heavy manuring, and is so much added to the lime dressings, and yielding, on decay, all the elements which plants need to feed upon.

But then with grass comes grain, furnishing large quantities of straw, and corn-stalks and blades, giving material for great quantities of manure, and with these comes stock to consume them on the farm. More horses, more cattle, more sheep, more hogs—the manure manufacturers of the farmer—turning all these to the best account, are, year after year, leaving great quantities of the best manure behind when they go to market; the best because containing not one element, as lime, but all that is needed.

Then, if the farmer be wise enough to feed away his grain instead of selling, the manure is the richest and most valuable, and the soil may be kept at the maximum of fertility, if well managed. This accounts for the answer of an extensive and observant Chester county farmer to the question whether, after the application of lime for so long a period of years, there had been any symptoms of decline in the production of the land or diminution of the benefit derived from it. His answer was decidedly in the negative, for, he said, "those who have limed the most have been pretty sure to manure the most." Those who have the spirit to improve freely in one direction are not apt to stop at that, but use well all the means at their disposal; they are the best and most careful farmers and their land is constantly advancing in productiveness.

### Specialties in Farming.

We find a suggestion in one of the agricultural journals that is worth noting, as to the advantage of every cultivator having a specialty always, to which he may devote his attention chiefly, arguing that a crop thus acquires an importance which commands for it whatever intelligence and attention the cultivator can command. He may, indeed, have all the variety desirable for his home consumption, the use of his stock, &c., and these will give interest to his operations. But the one great object of his attention and concern is the particular crop he may select as a specialty. To this, for the time being, he devotes himself, and is enabled to realize from it the best results.

In farming generally and planting, this is not uncommon. Wheat, or tobacco, or cotton, is made the specialty, and with good results, except that it may happen that the general interests of the farm are overlooked in the concentration of attention and means upon the main crop. This need not be, however. There is no inconsistency between a due attention to general interests and a special attention to the one or two main crops which are chiefly looked to for the year's profits.

But the suggestion is especially applicable to what is called truck-farming, when there is disposition to divide the attention among many small crops. Speaking of this, the Massachusetts Plowman says: "There is no economy in this mode of management. It costs too much to market the small truck on a farm in little dribblets. With some specialty, be it onions, squashes, grapes or what not, the marketing comes at about the same time. It is soon over with, and it costs in the aggregate a good deal less than it does to run off to market with a little of everything."

As an instance of success, the Massachusetts Plowman says: "We once knew a thrifty and enterprising farmer who cultivated, generally, about fourteen acres of onions. He got, on an average, about five hundred bushels to the acre. He gave his time and his thoughts to this crop, made it a special study, and understood it thoroughly. He studied the market, and he studied the crop in every phase, looking around to see how the crop was coming out, not only in his own neighborhood, but at a distance, so as to be able to judge of the best time to sell. The result was that he made money on onions. It was his specialty, and he understood the crop and the market."

Henry K. How, proprietor of *How's Nurseries of Peach Trees and Small Fruits*, near New Brunswick, has favored us with proceedings of the Middlesex Farmer's Club of that State, containing interesting matter on the subject of small fruit culture, which we shall use hereafter.

For the "American Farmer."

### Nitrate of Lime as a Fertilizer.

In the recent struggle for Southern independence, the fact is generally known that large quantities of saltpetre were made from the nitrate of lime found in numerous caves which exist in Northern Alabama, Middle and East Tennessee, Kentucky and Virginia.—The formation of so much nitric acid in the limestone caves referred to, presents facts of great importance to all in any way interested in the fruitfulness of farms or plantations. Probably no scientific man regards an atom of nascent nitrogen liberated from hydrogen, as the two elements exist in ammonia, as better for any agricultural purpose than an atom of nitrogen, liberated from oxygen, as they exist in nitric acid. Nitrogen in a nascent state being alike available as plant food from ammonia and nitric acid, it follows that, if we can form nitric acid from its very abundant elements as it appears to be produced in caves, (one of which is on the writer's farm,) then we can make at will, with lime and loose soil, the most valuable ingredient in Peruvian guano. Unfortunately, all the conditions necessary to the most successful nitrification, whether in caves or compost heaps, are not so well understood as those relating to combustion. Opinions among scientists differ in regard to the fact whether nitrification is limited to the nitrogen derived from animal or vegetable substances in caves, stables, or nitre beds artificially prepared, or often extends indefinitely beyond, taking nitrogen from the atmosphere. Knapp, in his *Chemical Technology*, favors the former idea; while Boussingault, Sprengle and others believe that the chemical union of nitrogen and oxygen, in the form of nitric acid, once set in motion in the presence of a strong base like lime, potash or soda, in a porous body, (probably to condense the gases,) may continue until the favoring conditions fail. It is well known that an excess of water in wood or coal will extinguish combustion. The same is true of nitrification.

Firebrands will burn rapidly if put close

together so as to heat one another; but change their condition, by separating them, and the fire on each hill will go out from the loss of radiated heat. Those seeking to form the nitrate of lime, must study the conditions of temperature, moisture and porosity, which control nitrification.

What are the conditions under which such vast quantities of cubic nitre (nitrate of soda) are formed partly in Chili, but mostly in Peru? There is no apparent organic source, either animal or vegetable, that can furnish so large an amount of nitric acid. If not derived from substances once endowed with life, it must have a mineral origin, or come from the atmosphere. Boussingault traces all the nitrogen in guano to the atmosphere; and there need be little doubt that all nitric acid has a similar origin. Europe and America are supplied mainly with saltpetre and cubic nitre from the warm climates of India, Egypt, Algeria, Spain and South America. The inference is plain that our nitre beds should have a bottom heat, such as we give to pine apples, cocoa-nuts and other tropical fruits. They require for perfect development a higher temperature than our climate affords; and the most efficient production of nitric acid appears to demand a similar condition.

With regard to moisture, it should be considerably below saturation. Too much water reduces temperature, and otherwise prevents chemical action or nitrification. It very rarely rains in the districts of Peru where the nitrate of soda is formed in such vast quantities. A porous soil or earth, some moisture, a pretty high degree of solar heat, and a strong alkaline base to take up each particle of acid as soon as formed, appear sufficient to effect the chemical union of nitrogen and oxygen. Whether nitrification is started by some decaying animal or vegetable substance in the ground, by decomposed ammonia, or by electricity, is a matter of little consequence. What we want is to make at will large quantities of nitrate of lime, by using the same forces and conditions that nature uses in making so much cubic nitre and saltpetre.

During the late war I bought a farm on the Tennessee river, which had a cave, from the debris of which a good deal of saltpetre was manufactured. The nitrate of lime dug up with earth, on the bottom of the cave, appeared to grow from year to year, without any help from man or animal, very much as I have seen



gypsum grow in Western New York. A few words, showing how gypsum grows in some places, will aid in illustrating the chemical formation of the nitrate of lime.

Some earths contain not a little of sulphuret of iron. Under favorable conditions this sulphur is oxidized into sulphurous or sulphuric acid. More acid is formed than the iron will combine with; and in Genesee Co., New York, there is a large spring of water strongly impregnated with free sulphuric acid. It is obvious that any water charged with this acid in passing over lime rocks, or their debris in soils, will form the sulphate of lime, which is gypsum. Now, so long as the earth supplies sulphur, and air and water yield oxygen, sulphuric acid will be formed, and from this and lime, gypsum will grow on from year to year indefinitely.

Make the conditions *right*, and oxygen is as ready to unite chemically with nitrogen, to form nitric acid, as with either sulphur or phosphorus to produce sulphuric or phosphoric acid.

The facility with which nitric acid is formed in limestone caves in this country and Europe proves clearly that lime, as a predisposing base, is fully equal to either soda or potash; and as lime is a cheap article, especially in marl districts, I venture to suggest to such as have marl or lime to try to form the nitrate of lime for manure. By referring to page 169 of the December number of the "American Farmer" it will be seen that Dr. Voelcker found a fraction less than 2 per cent. of nitrogen in box manure, i. e. the excrement of cattle well fed in boxes. Nitrogen is estimated 73-10 pence per lb., in gold, equal to more than 20 cents in our currency. These facts indicate the great value of assimilable nitrogen. So far as the crude nitrate of lime or of potash has been tried by farmers in Tennessee and Southwestern Virginia, the reports are favorable.

D. LEE.

*Gap Creek, Knox county, Tenn.*

☞ The Augusta (Ga) *Chronicle* begs the cotton planters of the State to give at least one fourth of their best lands this year to wheat, assuring them that the latter will prove the more profitable crop.

☞ The *Country Gentleman* says: "The materials and labor required to build and keep fences in repair are among the heavy items of farm expense. The cost of the land upon which they stand is another item."

#### The Department of Agriculture—Facts in regard to the Glover Museum.

We have intended to give some account of the Museum connected with the Department of Agriculture at Washington, for the design and arrangement of which the Department is indebted exclusively, as we believe, to Mr. Townend Glover. We find the matter prepared to our hand in the following article from the *St. Louis Journal of Agriculture*. It is written evidently by one who knows whereof he writes, and we give it place in justice to Mr. Glover and the Department. We know Mr. Glover well, and it is no praise to say of him what is patent to all who have had the opportunity of making his acquaintance, that he has genius, enthusiasm and great ability for work. He will have much larger space for his operations in the new rooms assigned to him in the Department building now going up, and with the material already accumulated and his devoted industry, we look for an expansion of the Museum that will make it creditable to the country.—*Ed. Am. Farmer.*

A correspondent of the *St. Louis (Mo.) Farmers' Advertiser* (now *Journal of Agriculture*), writing from Burlington, Iowa, makes some statements in the issue for October 1st, in regard to the Department of Agriculture, which are too absurd to require notice; but others are so palpably false and unjust, and so evidently intended to mislead the public concerning facts in which all are interested, that it is but right they should be corrected.

First, as to the expense of the Department: It is very certain that no more can run out of a fountain than runs in, and heretofore the chief causes of complaint have arisen from the fact that the appropriations of Congress have been too small to allow the Department to meet the demands of the public. Instead, of "spending millions," as "B. T." asserts, the records show that the expenditures have been considerably less than one million of dollars since the organization of the Department. That it has been cramped for room and means to do what should have been done, is not the fault of the officers, but of Congress, that has not recognized and provided for the people in a more satisfactory manner.

In regard to the museum under the charge of Professor Glover, a great misunderstanding exists in many minds, and the assertions of "B. T." are so far from truth that a full statement of the whole matter seems called for,

even at the risk of tediousness and repetition to those already acquainted with the facts. Some twelve or fourteen years ago, Mr Glover, who was then in the employ of the Agricultural Bureau of the Department of the Interior, sold to that Department his entire collection of model fruits, amounting to over 2,000 specimens, for \$10,000. These specimens, instead of being "such as image peddlers carry about on their heads and idle girls manufacture at boarding schools," are *fac similes* of fruits grown in different localities, showing the effect of soil, climate and culture upon them, and with the help of the accompanying catalogue of descriptions, enabling the farmer or orchardist to select at once such varieties as are best adapted to his wants and location. Hundreds who have by this means been saved years of vexation and fruitless experiments can attest the utility and value of this system; and when perfected as the intention is, it will be infinitely more valuable than now, embracing, as it will, specimens from all the States and of all new and improved varieties as fast as they are introduced. The \$10,000, then appropriated by Congress for the purchase of the models, was never received by Mr. Glover, but was drawn and used by the officers of the Department during his absence in South America on official business. For nearly six years thereafter Mr. Glover was employed at the Maryland Agricultural College, and had no connection with and received no salary whatever from Government. During this time he commenced the engravings for his projected work on American Entomology. After the organization of the Department of Agriculture in 1862, he was employed as Entomologist and Naturalist for the Department.

Conceiving the idea of creating a National agricultural and economical museum, he again placed his models on exhibition, and spent over a thousand dollars of his private means in procuring specimens of natural history and furnishing the rooms to illustrate his idea. Adding to these his valuable collection of American insects, and a colored copy of his insect plates, he offered the whole to Government for \$15,000. After several years of waiting, during which the Department had the free use of his beautiful and useful collection, another appropriation of the original sum, \$10,000, was made. This amount, and

this alone, Mr. Glover has received. And what has the Department obtained?

The information connected with the birds alone, and learned almost at a glance, would require extensive research through libraries and forests, for here you have not only the classification and labels bearing the names and references to authors, but the character of the bird, its habits, and whether injurious or beneficial to the farmer or merchant, and the contents of its stomach proving its tastes and habits. The insect world, colored to the life in the plates covering the walls of the museum, embodies a wonderful amount of patient toil and close study. These have all been done out of office hours, and number over one hundred and fifty plates, containing from twenty to sixty or seventy insects each, showing all their transformations, giving their names, food, and reference to authors by whom they were described. Thus any person bringing or sending an insect to the Department may at once identify it and learn its whole history, whether it is the farmers' friend or enemy, and if the latter, the best means known for its destruction. The many letters of inquiry constantly received and answered in this line have fully tested the use and beauty of the plan, as any one with a moderate knowledge of the English language can trace out the entire insect history with nearly the facility and all the correctness of an expert in entomology. Thus the Department has the information to impart whether the Professor be absent or present, and an idea of the pecuniary value of the plates may be had when it is understood that not one of all the thousand of insects represented could be given in the perfection they are short of from three to five dollars each, and some would cost even more, making the plates themselves average one hundred dollars apiece. Of course the purchase by the Government does not include the original copper plates and the copyright of the work; these are Mr. Glover's private property, being purchased with his own money and engraved in his own time, partly when at the Agricultural College, and the remainder after office hours, and could not be afforded in connection with the museum for anything like the price given. The Department, however, will have a complete colored copy of the work when finished, and has meanwhile the use of the plates as fast as engraved.



The collection, classification, and arrangement of silk producing insects and their products, fibers, and the manufactures from them, seeds, grains, and cereals of all kinds is in itself no small labor, and requires daily care in attending to new specimens, labeling, explaining, etc.; and, take it altogether, the results of years of intense application and energy here concentrated are invaluable, especially when it is considered that this is but the beginning of what is to be.

Combined with this general collection there are to be divisions for state museums where the products and manufactures of each State are to be shown, and an economic museum on a still more extensive plan, embracing the productions and manufactures of all countries. But for a full explanation of this, reference is made to page 94 of the Agricultural Report for 1865.

For his exhibition of insects, plates, and his system of agricultural instruction by means of a museum, arranged as an object library, Mr. Glover received the large gold medal of the Emperor Napoleon at the entomological Exposition in Paris in 1864, and officers and delegates from both American and Canadian societies who have examined the collection and the plan have uniformly spoken in the highest terms of both, and considered the Government fortunate in securing them and the services of the originator at any price.

The museum, as sold to the Department, cost Mr. Glover from six to eight thousand dollars in money and nearly twenty years of close labor and scientific research. The above description gives but a faint idea of the amount of information here at the service of the public. Judge then if the price paid was too high, especially considering that the \$10,000 now received was due to Mr. Glover twelve years ago, that his museum is worth more than double what it was then, and that he accepted the amount without interest after all those years of waiting.

A. B.

### Storing Celery.

We have said a great deal heretofore about the cultivation of celery; and now, as the crop must be pretty well grown, we shall proceed as usual at this season, to give some reliable direction for preserving it through the winter.

Many people complain of their celery—one of the most difficult garden crops to raise in

perfection—that it does not keep well through the winter—sometimes it withers, but oftener rots. It is recommended by some that it should be preserved in the rows where it grows, and that removal always more or less injures it. Where the plant is grown in soil of a dry nature, it may be kept well enough in the row, but we deny most emphatically that removal injures it in the slightest particular.

We pursue two modes and find both to answer well. The first is to remove the celery to high and dry ground, dig a trench spade deep, stand up a row of plants, then three inches of soil, then another row, and so on until about a half dozen rows are finished, then commence another bed, and so on. The soil should be packed in firmly and banked up, so that the tops of the celery are just covered, then spank off roof fashion to turn the rain. Over this two wide boards, nailed together, should be placed, as a security against moisture. For remember, it is water, not frost, as some say, that rots celery. Frost adds to its tenderness.

Another plan is to sink barrels into the earth, so that the tops are two or three inches below the surface, then stand them compactly full of celery, without any soil, but close or tight covers upon them, so as to exclude all moisture, and then a couple of inches of soil. By this mode, somewhat more troublesome than the other, ours kept well for the last three or four years until all was consumed, which was late in the spring.—*Germantown Telegraph.*

**SILK PLANT DISCOVERED IN PERU.**—The Department of State has received information from the U. S. Consul at Lambayeque, Peru, that an important discovery has recently been made in Peru, of the silk plant. Preparations are being made to cultivate it upon a more extensive scale. The shrub is three or four feet in height. The silk is inclosed in a pod, of which each plant gives a great number, and is declared to be superior in fineness and quality to the production of the silk worm. It is a wild perennial, the seed small and easily separated from the fibre. The stems of the plants produce a long and very brilliant fibre, superior in strength and beauty to the finest woven thread. Small quantities have been woven in the rude manner of the Indians, and the texture and brilliancy are said to be unsurpassed.

### Labor Contracts.

Under the changed and unhappy condition of every thing connected with farm-labor and farming in our once happy land, it has become necessary to adopt some form of contract with the negro, when hired as a farm-laborer. And that form should be, as far as possible, uniform all over the State.

More engagements for occasional work, by the day, week, or month will not do upon cotton plantations. No man can afford to risk the outlay necessary, unless the labor is reasonably sure for the year.

Whether hired for money-wages or for a portion of the crops, there are certain stipulations which should be rigidly insisted upon.

By laws recently enacted—approved. . . . ., 1866—it is provided that contracts made with laborers, for more than one month, may be in writing; three copies of the contract to be made; one for the employer; one for the employed; who represents himself and his family; and the third shall be filed in the office of the Clerk of the County, and by him properly indexed in a book for that purpose, that it may be easily referred to.

The interests of both employer and laborer are carefully and fully guarded by the provisions of this act. The laborer has a lien upon one half the crops for the payment of his wages, whether payable in money or in kind. He can be held liable in damages for breach of contract on his part.

An amendment to the Penal Code makes it a serious *penal offense* to tamper with, or persuade, the employé of another to break his or her contract, and a *still more serious offense* to employ the employé of another while under contract. Hence the importance of carefully drawn-up contracts.

The laborer should stipulate that he engages himself and his family to the employer, as farm-laborers upon his farm, in such and such a county, to do and perform all of the work required to be done upon that farm, as directed by the employer, be that work what it may in the regular course of work; including the care of stock of all kinds upon the farm, cutting and hauling wood for, and supplying other like customary and necessary wants of, their own and their employer's households; carrying on such a system of improvements as, in the employer's judgment, can be carried on without detriment to the crops—such as making and repairing fences, hedging and

ditching, opening fresh lands, building and repairing houses; and doing any other necessary and customary farm-work.

That for himself and family, he recognizes as the hours of labor, ten hours per day, of steady work, upon an average of working days the year round—that is, that while a fewer number of hours may suffice during some seasons of the year, to do the needful work, a greater number may be required at others; as, for instance, when cutting out, or picking cotton, etc.; and which shall not be considered as being extra labor, if not exceeding an average of ten hours per day, and not even then if the employer deems the extra labor necessary to the saving of crops.

If however, the laborers are paid money-wages, and are required by the necessities of the work upon the farm to labor more than an average, the year round, of ten hours per day, they should be paid for that extra labor at the rate at which they are hired.

If paid in a share of the crops, a daily record should be kept of the work done by each worker upon the farm, and of the ability of each worker; to be open every Saturday afternoon to all who are interested; and to form the basis of a just and fair division among the laborers, of their respective shares of the crops. The employer or manager, where one is kept, should settle all misunderstandings or disputes between the laborers; and in case of any disputes or disagreements arising, which cannot be thus settled by employer and manager, such cases should be submitted to the arbitration of the County Judge, whose decision shall be final. The question of the final and just division of the crops, and that of the loss of time from any cause, to be subjects for such adjudication and final settlement. And any fines or deductions for such loss of time, etc., should be divided between the employer and employed in the same proportions in which the crops are divided.

The employer should engage, on his part, to house the laborers in reasonably comfortable cottages; to supply all of the fuel said family may require, the cutting and hauling of which to be part of the regular work of the farm; to furnish to each worker over twelve years of age, of said family, one peck of good and sound corn-meal, and three and a half pounds of sound bacon, or seven pounds of fresh beef or mutton, at the employer's option, per week;

and might agree to sell to them, at market prices, such flour, sugar, coffee, tea, tobacco, etc., as they may require for their own use, not to exceed in amount \$. . . . . per quarter, to be paid for at the end of the year, out of the proceeds of their share of the crops; to give to said family the use of a milch cow, on condition that the calf is properly cared for; and the use, free of rent, of one half of an acre of good land for a garden, convenient to their homes; to permit the said family to raise what poultry they may choose, excepting, perhaps, geese and turkeys; and to keep a pig, in a pen, for each worker in the family; but no other stock whatever.

The practice of negroes, laborers on a farm, keeping upon that farm one or more horses or mules, and of dropping work on Saturday at noon, no matter what may be the condition of the crops or of the work, is simply absurd, and should never be conceded as a right.

No labor should be required or exacted on the Sabbath day, except such as is customary in all Christian communities. And the employer or manager should designate who are to perform those necessary duties, endeavoring to let them fall equally upon each, in his or her turn.

Any disobedience of a reasonable order; any neglect of duty or of work; insolence on the part of negroes to their employers, or other conduct calculated to produce disturbance or difficulty on the farm, should be punished by fines, stipulated in the contract; and continued misconduct should be made cause of dismissal, with stipulated forfeiture of a portion of the wages or of share of crop.

It should be distinctly provided, as a condition in their contract, that no negro shall keep fire-arms on the farm or premises of his employer.

Let such reasonable conditions as these be made general, and there will be no difficulty; nor is there injustice in enforcing them.

The employer should bind himself, when the hands are paid a portion of the crops, to keep the farm supplied, at his own cost, with the teams, tools, implements and machines, and with feed for the teams until such feed is produced upon the farm—after which they should be fed from the crops before division—sufficient for the proper and efficient cultivation of the farm with the number of hands employed upon it; and should recognize the

fact, that as the laborers thus employed are to receive as in full compensation for their labor a certain share of the crops made, the labor of the hands and teams should not be taken up in making unusual improvements, or such as would clearly lessen the amount of crops to be made; or if, from any cause, they are thus employed, it should be with the consent of the said laborers, and be paid for as extra work.

The employer should agree to pay the laborer, for himself and family, in full compensation for their labor, for each year of the term for which they are employed, such share of the one third or other stipulated part of all the crops grown and produced, resulting from their labor, upon the said farm, as may be awarded to him and them, (the said laborer and family,) in the division to be made among the laborers employed on the farm and having an interest in the crops, of the one third or other part of said crops at the end of each year. The said division to be regulated and controlled by the laborers, by and with the assistance and counsel of the employer and manager, to take place on the plantation, after the crops are housed, stacked, or ginned and baled, or otherwise ready for market. The laborers to be charged with the cost of the bale-rope and bagging required for their portion of the cotton. If, however, in the judgment of the employer, it may be for his interest and that of the laborers, that the cotton, or any of the other crops should be sent to market before the close of the year, owing to the probable conditions of the markets, roads, or rivers, etc., such crops, or portions of crops, may be sent forward and may be sold, provided the said employer first makes such provision for securing to the said laborers the net proceeds of their share of said cotton, or other portions of the crops sold, as shall be approved by them in writing, or before competent witnesses.

Contracts thus drawn up, and recorded or filed as provided for by law, would protect both employer and employed; the latter from risk of dispute as to rate of wages, privileges, and provisions, or risk of non-payment of wages; and the former from the gross imposition to which he is now exposed, in loss of time, neglect of all kinds of work, and refusal to do any thing but what the negroes choose to look upon as their proper work. As also from that great and intolerable evil and injustice, of every negro on the farm claiming to

own a horse or mule, which is fed as a matter of course from the corn and forage of his employer, and must be cared for, curried and attended to, no matter how the regular work of the farm might suffer from neglect; besides being a constant temptation and inducement to spending the livelong night in frolic and dissipation.

There is no reason whatever, that because the negro is no longer a slave, the master should take his place. The merest possible justice requires that both parties to a contract should be equally bound to fulfill their part of it. So long as planters permit themselves to be entirely dependent upon the free-negro labor of the State, they must submit to be dictated to and controlled by it.

The remedy, and the only one, is the introduction of intelligent white laborers from other countries, who by their competition and example, would quickly change the present unnatural and unhealthy state of things.—*Texas Almanac.*

#### The Great Exhibition of the American Poultry Society.

We have rarely enjoyed a public exhibition as much as this one on Thirteenth street. We had but a faint conception until now of the immense advances made in that branch of rural economy devoted to the breeding of the smaller domestic animals, both feathered and furred, for use or for ornament.

Guided by Gen. Brown, one of the largest exhibitors, we were led from surprise to surprise. We saw in the highest perfection fowls of every known variety, from the gigantic Cochins and Brahamas down to the Liliputian Bantams. We saw apparently every known species of domesticated duck: the heavy La Platta, the superb Rouen, the beautiful Aylesbury, the Cayuga, and our own most beautiful, but diminutive, Summer duck. Every variety of domesticated goose was there, and chief among them the Thoulouse and the white Embden. We were glad, too, to observe a collection of the lopped-eared rabbits, so much cultivated abroad as a wholesome and cheap article of diet, and which, so far, have been too much neglected by our rural economists. In Europe, the humblest laborers, who are precluded by want of space from breeding poultry, raise their own rabbits, with little care or expense, in hutches, which occupy very little space. We were glad to learn that a

firm, composed of Messrs. Brown, Halsted & Co., are about to supply what has long been a desideratum with farmers and breeders of fancy animals—that is, an extensive, reliable breeding establishment, with an office in the city, where purchasers may apply with the certainty of being supplied with the very best breed of all the smaller domestic animals, including dogs. The high perfection of the various species of imported poultry exhibited by this firm in Thirteenth street is an earnest of the thorough manner in which they intend to carry out their design. We promise to return to the subject when we receive from the Society the published proceedings of this their first exhibition.—*Turf, Field and Farm.*

#### Our Agricultural Progress.

The Hon. R. J. Walker has recently written a letter on the national finances, which is attracting marked attention. The figures which he gives, showing the great increase in the agricultural resources of the nation during the ten years between 1850 and 1860, will astonish many who think our agriculture is not progressing as fast as our other sources of national wealth. Mr. Walker says:

By looking at table No. 36, in the preliminary report on the eighth census (pages 198 to 210, including the additional returns on these pages,) the following will be found to be the results, as to agricultural products, from 1850 to 1860:

	1850.	1860.
Horses (number).....	4,336,719	7,303,972
Asses and mules.....	559,331	1,396,339
Milch cows, working oxen and other cattle.....	18,378,857	28,987,346
Sheep.....	21,723,220	24,823,371
Swine.....	30,354,273	36,023,472
Wheat (bushels).....	100,485,944	171,183,381
Rye (bushels).....	14,188,813	20,976,256
Indian corn (bushels).....	592,071,104	830,451,707
Oats (bushels).....	146,584,179	172,554,688
Tobacco (pounds).....	199,758,655	429,390,771
Ginned cotton (bales).....	2,445,793	5,195,077
Wool (pounds).....	52,516,959	60,511,343
Peas and beans (bushels).....	9,219,901	15,188,013
Irish potatoes (bushels).....	65,797,896	110,571,201
Sweet potatoes (bushels).....	38,268,143	41,606,302
Barley (bushels).....	5,167,015	15,635,119
Ruckwheat (bushels).....	8,956,912	17,664,914
Wine (gallons).....	221,249	1,360,008
Butter (pounds).....	313,345,306	460,509,854
Hay (tons).....	13,838,642	19,129,128
Clover seed (bushels).....	468,978	929,010
Grass seed (bushels).....	416,831	900,386
Hemp (tons).....	34,871	104,490
Hops (pounds).....	3,497,029	11,010,012
Maple sugar (pounds).....	34,253,436	58,863,854
Cane sugar (bids.).....	237,133	302,205
Molasses (gallons).....	12,700,991	25,517,699
Beeswax and honey (pounds).....	14,853,128	26,386,855
Rice (pounds)—small decrease.		
Cheese—slight increase.		
Flax—large decrease.		
Flax seed—small increase.		
Silk cocoons—decrease of 4281 pounds.— <i>Weekly Press.</i>		

### Culture of Broom Corn.

Good crops of broom corn may be raised, with proper care and attention, on any clean fertile land where Indian corn will succeed well. River flats are particularly well adapted to it, provided the nature of the soil or the situation gives them a good natural drainage. Uplands should be well underdrained if the subsoil is retentive of water. Drained muck beds are more liable to frost, are not compact enough, and are not well adapted to the culture of this crop. As the plants appear small and feeble at first, and are easily choked by an over-growth of weeds, it is more important that the soil should be clean than for the culture of common corn; and, as complete success depends on fertility, more pains should be taken to have everything just right. A crop of broom corn, it is true, may be raised with a moderate degree of care and attention; but the yield will be moderate, and perhaps it may prove a losing affair. In order to obtain the highest net profit, let everything be done in the most perfect manner.

If the land is not perfectly clean, the best way will doubtless be to plant on a freshly inverted sod—a clover sod being decidedly the best, especially if the land is inclining to be heavy. The roots of the clover will loosen it in a better manner than ploughing or harrowing alone can accomplish. An excellent mode is to spread old manure, the seeds of which have been killed by fermentation, or any other manure that is clear of foul weeds, on the clover the previous summer or early in autumn. Late in autumn or early in winter will be better than spreading in the spring, the manure will soak into the soil during the several months before ploughing, and become better diffused than could be accomplished by any ploughing or harrowing. The time for planting is about the same as for common corn—as early as will do to escape spring frosts. Before planting, let the soil be made perfectly mellow, and if to be in hills, mark out so that they may be as near together as will admit of convenient cultivation. The nearer they are together, or in other words, the more evenly and uniformly the plants are distributed over the surface, the greater will be the yield of brush. A common distance of hills is two and a half to three feet one way, and twenty inches to two feet the other. If planted in drills, a larger crop may be obtained, as a greater number of stalks will grow,

but they are attended with more labor. The number of plants may be about three times as great as for Indian corn. If a larger quantity of seed is planted, so as to require some thinning out, the crop will be more even and larger, but will need a greater expenditure of work. It is common to plant a dozen or more seeds in each hill, about an inch deep, and thin out to seven or eight—leaving a larger number if the hills stand two by three feet than if twenty by thirty inches. Drills are sometimes placed only twenty-eight inches apart. Many regard the finer and softer brush of thick growth as best.

The cultivation of the ground should be commenced as soon as the plants make their appearance. It is very important that they be not allowed to become encumbered or crowded with weeds. Keep the whole surface perfectly clean from the very start. Continue the horse cultivation once a week, as long as the size of the plants will admit. This is not generally attended to, but the constant stirring of the surface and breaking of the crust will make an important difference in the amount of the crop.

When the stalks have sufficiently grown, or when the seeds are in the milk state, the breaking back is performed. It is done at a convenient height for the operator, generally so as to leave a foot or two of stalk from the base of the brush. Two rows are broken towards each other, so as to admit a ready passage between the other two. The seed being rather difficult to cure by drying, some cultivators give no attention to saving it, especially as it often fails to ripen at the north except in favorable seasons. If the stalks are broken back a little earlier, they form a better brush. In a few days they are cut, just above the break, and laid in bunches to dry. These must not be opened, to become wet by rain, as this would injure their value. The seed are removed by hand, with a sort of coarse comb, where the plantations are not large; but when the crop is cultivated on an extensive scale, it is done with a machine driven by horsepower. The brush or tops are dried by laying them on horizontal poles, and successive tiers placed one above the other, leaving spaces for the air between each. Sheds or lofts may be used for this purpose. Temporary structures for drying are made of rails, the brush being laid on pairs of rails laid horizontally, so as to form a structure 12 feet square,



or equal to the length of the rails, and each successive tier formed by resting the horizontal rails on an additional rail placed under each of their ends. By selecting the larger rails for one side, this side gradually becomes higher than the other, and admits a board roof for the top when the height has reached eight or ten feet. The quantity of brush yielded from an acre is usually about five or six hundred pounds, but, in rare instances, it has reached as high as a thousand pounds. The price varies from five to ten cents. There is more uncertainty with this crop than with many others—not on account of the difficulty of raising, for with proper care it is reasonably certain, but from the uncertain or fluctuating character of the market. With the seed, especially, this uncertainty is great. Sometimes it is sold as high as three or four dollars per bushel; at other times for not more than fifty cents. The seed may, however, be profitably used as food for horses when mixed with oats or other grain. When the seed is not allowed to mature, several successive crops have been grown on the same ground without detriment, and with moderate manuring.

We would not advise our correspondent to go largely into the cultivation of broom corn until he has experimented on a moderate scale, and ascertained the probability of a good market. Perhaps, however, he may regard a fifty acre crop a moderate experiment, which he could afford to lose without serious detriment should the result prove unfavorable. We cannot give the names asked for, nor state where the seed may be bought.—*Country Gentleman.*

☛ Man is an important agency in agriculture. The vital power may exist in the seed, but care and skill are required in the development of it. Although man cannot act directly upon the functions of plants, he can modify and control to a certain extent the influence of other agents upon these plants. Thought, as well as hard work, is necessary to make a successful farmer. It is a mistaken idea that a good education is of no practical value to the tiller of the soil. Unless he understands the principles of science, the influence of atmosphere, the chemical properties of soil, etc., he cannot properly develop the vital power of seed, and justly advance the important interests of agriculture.

### Economy in Feeding Horses.

The great drawback on the farmer's profits is the consumption of fodder by the all-devouring draft-horse, and too little attention is given to the economy of fodder and to the preparation of it in such a manner that while there is as little waste as possible, the food is given in a shape in which it can be easily masticated and reduced to that pulpy mass, which can be taken up by the blood vessels, and distributed throughout the tissues which extend all over the frame.

The expense of feeding horses is generally so great, as to have a very injurious effect on the pecuniary circumstances of the tillage farmer, and it is a question whether he should be better off without any tillage land. At all events farmers who keep nearly all their land in grass for the purpose of raising cattle, or sheep, are generally much better off than those who keep a large portion of their farms tilled and are compelled to have a large number of horses to do the work. One thing is certain, that if horses are kept, they must be fed, and the manner of feeding with the least possible expense, and the greatest benefit to the animals, is a matter of very great importance to the farmer.

In "Hints on the most Economical Manner of feeding Horses," by S. Menteth, the writer speaks of a variety of articles which are available for feeding farm horses in a very substantial manner at a reasonable expense. Steamed potatoes are strongly recommended as a cheap and useful provender. In feeding with any kind of grain it should always be bruised, or what is better, coarsely ground. The hay should be cut into chaff, that is into small lengths of from a quarter to a half an inch, mixed with a proportion of straw, cut in a similar manner.

In the "Hints" above mentioned there are several examples of successful practice of the economy of forage, founded on long experience in the feeding of horses. In the stables of Hamburg and Trueman, in Spitalfields, 82 horses are kept. The animals receive all their food in the manger; no hay is ever put in the rack. The whole are in excellent condition, evincing the correctness of the management. Each horse consumes in the 24 hours, 18 lbs. of cut hay and straw, of which the latter constitutes one eighth—14 lbs. of bruised oats, one lb. of bruised beans; making in all 33 lbs. of food. In Summer beans are not

given, being found too heating, and instead of the beans, a small addition is made to the quantity of oats. Half a pound of salt is given to each horse, divided into two portions; one given on Saturday night, and the other on Sunday, which so given, purges moderately.

Dr. Sully, of Wivellscumb, Somersetshire, England, has been very successful in feeding horses. He has adopted the following mode of treatment and has persevered in it for 30 years. His horses work hard, and are always in good condition. In his stables there are no racks to hold hay, as he considers it a wasteful method of feeding; and that the horses when they have command of their heads, pull the hay out of the racks and throw considerable portions of it under their feet, and that 30 lbs. of hay, and upwards are often consumed in this way, and spoiled in the 24 hours; whereas when it is cut and mixed with a due proportion of cut straw and bruised grain 10 lbs. will be sufficient.

In the loft above the stable proportional quantities of food, sufficient for the daily consumption of each horse are prepared; a pipe passes from the loft to each manger, and close by the top of the pipe is placed a tube capable of containing sufficient food for a horse for 24 hours. To prevent the horse from tossing the mixed food out of the manger, cross bars are nailed on the top of it, at 12 inches a part. The cut hay and straw, and also the grain, are regularly weighed out, and when the ingredients are prepared, the portions for each horse are allotted. For the sake of variety the ingredients of the food are divided into four classes, they consist of farinaceous substances such as bruised beans, peas, wheat, barley or oats; bran fine or coarse; potatoes boiled or steamed; boiled barley; hay cut into chaff; straw cut into chaff; meal-dust or ground oil-cake with two ounces of salt in each 30 lbs. of feed.

The ingredients of the daily ration (30 lbs.) in class 1, consist of five lbs. of bruised oats, or beans, etc.; five lbs. of boiled potatoes six lbs. of boiled barley, seven lbs. of chopped hay. The ingredients of class 2, consist of five lbs. of bruised grain; five lbs. of boiled or steamed potatoes; eight lbs. of chopped hay; ten lbs. of chopped straw; two lbs. of meal-dust. Class 3—ten lbs. of bruised grains; ten lbs. chopped hay; ten lbs. chopped straw. Class 4—five lbs. of bruised grain; seven lbs. of beans; eight

lbs. of chopped straw, and two lbs. of malt-dust.

It will be seen from the foregoing paragraph that each horse receives 30 lbs. of food in 24 hours; a quantity which in all cases will be found amply sufficient; the addition of two ounces of salt is necessary to assist digestion. It is known that all herbivorous animals in their wild state resort to salt, wherever it is met with. Of the four classes into which Dr. Sully divides the ingredients of his food for horses, those which contain the boiled or steamed potatoes are most recommended.

It will be then apparent, that, although in the methods for the feeding of horses here described, some difference exists in the articles made use of as food, yet that they all agree in certain essential points, namely; of invariably bruising, or coarsely grinding the grain and beans, in cutting down the hay or straw—in giving no hay in the rack—in giving salt, and in weighing each article separately before mixture, instead of adopting the fallacious guide of admeasurement.—*Ez.*

#### Butter and Cheese.

Butter and cheese factories are located in New York near the centre of each radius of three or four miles wherein grass and cows abound—usually but one in a township as yet, though they are being rapidly multiplied. A mill-stream and water-power often determine the site, though we believe a small engine and boiler (four to ten-horse) are preferred to a water-power. A cold and copious spring is well nigh indispensable; a good stock of ice, well stored and saved, is desirable. A large reservoir (like a cellar) is dug in the ground and tightly walled with planks; board platforms extend into this, floating on two or three feet of water, constantly renewed from the spring. In this reservoir, deep pails or cans are set and filled three fourths full of milk—they sinking and floating in a like depth of water. The milk remains here twenty-four to thirty-six hours, when the cream is taken off and churned by steam or water-power—six to twenty-four churns being operated at once, with no draft on human muscle. The butter thus made each day, from cream in the very highest condition, is of such uniform and superior quality as to bring from five to ten cents per pound more than fair farm dairies will command; and the milk, thus skimmed, is then made into cheese, rather mild in flavor, but palatable, and of very fair quality.—*New York Tribune.*

**187** In a contribution to the *Revue des Deux Mondes*, M. de Laveleye discusses the history and present state of Prussian agriculture.—Until 1833 Prussian farmers were not very good cultivators, nor were their farms very profitable. By a tradition, which can be traced back to Charlemagne's time, they let their lands lie every third year in fallow. Those who planted potatoes and made hay were in an insignificant minority. But Stein and his coadjutors have changed all this. Since 1833 the two year system of cereals, alternated with roots or seeds, has become universal in North Germany. As a result there has been an enormous increase of live stock. The farms are more thoroughly manured now than ever, and the area of unproductive fallow has fallen from one-third to one-seventh of the arable land.

### Baltimore Markets, Dec. 21, 1867.

**COFFEE.**—Rio, 15a17½ cts. gold, according to quality; Laguayra 17a18 cts., and Java 25a26 cts.

**COTTON.**—We quote prices as follows, viz:

Grades.	Upland.	Gulf.
Ordinary.....	13½	—
Good do.....	14½	—
Low Middling.....	15	—
Middling.....	15½	—

**FERTILIZERS.**—Peruvian Guano, \$80; California \$70; Rodanda Island \$30; Patapasco Co's \$60; Reese & Co's Soluble Pacific Guano, \$65; Flour of Bone, \$60; G. Ober's (Kettlewells) AA Manipulated, \$70; A do. \$60; Ammoniated Alkaline Phosphate, \$55; Alkaline Phos. \$45; Baltimore City Company's Fertilizer, \$40; do., Flour of Bone, \$60; do., Ground Bone, \$45; do., Poudrette, \$20; Baugh's Raw-bone Phosphate, \$56; Maryland Powder of Bone, \$50; Rhodes' Super Phosphate, \$55; Lister's Bone Super-Phosphate \$55; Berger & Butz's Super-Phosphate of Lime, \$56; Andrew Coe's Super-Phosphate of Lime, \$50;—all per ton of 2,000 lbs.; Pure Ground Plaster, \$13.50a\$14.00 per ton, or \$2.50 per bbl. Shell Lime slaked, 6c., unslaked, 10c per bushel, at kilns.

**FLOUR.**—Howard Street Super and Cut Extra, \$9.50a 10 00; Family, \$12.50a13 00; City Mills Super, \$9.50a 10 50; Baltimore Family, \$14.50a15.00.

**Rye Flour and Corn Meal.**—Rye Flour, \$7.75a8.25; Corn Meal, \$6.25.

**GRAIN.**—Wheat.—Good to prime Red, \$2.50a2.80; White, \$2.70a2.80.

**Rye.**—\$1.65a1.70 per bushel.

**Oats.**—Heavy to light—ranging as to character from 70 a76c. per bushel.

**Corn.**—White, \$1.23a1.25; Yellow, \$1.25a1.26 per bushel.

**HAY AND STRAW.**—Timothy \$21a23, and Rye Straw \$19 a\$21 per ton.

**PROVISIONS.**—Bacon.—Shoulders, 11½a13 cts.; Sides, 13a13½ cts.; Hams, sugar cured, 17a18 cts. per lb.

**SALT.**—Liverpool Ground Alum, \$2.15a2.20; Fine, \$2.80 a\$3.10; Turk's Island, 55a60 cts. per bushel.

**SEEDS.**—Timothy \$2.50a2.75; Clover \$3.00; Flax 2.40.

**TOBACCO.**—We give the range of prices as follows:

### Maryland.

Frosted to common.....	\$2 75a 3.40
Sound common.....	4.00a 4.50
Middling.....	7.50a 9.00
Good to fine brown.....	10.00a15.00
Fancy.....	17.00a25.00
Upper country.....	3.00a30.00
Ground leaves, new.....	4.00a13.00

**WOOL.**—We quote: Unwashed, 22a24 cts.; *Burly* do. 14a16 cts.; Tub-washed, 30a33 cts.; Pulled 22a28 cts.; Fleece 30a35 cts. per lb.

**CATTLE MARKET.**—Common, \$5.00a6.00; Good, \$8.00; Prime Beeves, \$8.25a8.50 per 100 lbs.

**Sheep.**—\$3.50a4.50 per 100 lbs. gross.

**Hogs.**—\$9.75a10.25; Extra \$10.50 per 100 lbs., net.

### Wholesale Produce Market.

*Prepared for the American Farmer by HEWES & WARNER, Produce and Commission Merchants, 18 Commerce street.*

BALTIMORE, December 21, 1867.

**BUTTER.**—Western solid packed 25 to 35 and Rolled 35 to 40; Glades, 35 to 45; Goshen, 45 to 50.

**BEEFWAX.**—38a40 cts.

**CHEESE.**—Eastern, 15½a17; Western, 14a15.

**DRIED FRUIT.**—Apples, 7 to 9; Peaches, 8a10.

**EGGS.**—32a36 cents per dozen.

**FEATHERS.**—Live Geese, 60 to 80 cents.

**LARD.**—Western, 13; City rendered, 14a16 cts.

**TALLOW.**—10a11 cents.

**POTATOES.**—\$1.00a1.70 per bushel.

### Contents of January Number.

Work for the Month .....	193
The Vegetable Garden.....	194
The Fruit Garden.....	195
The Flower Garden.....	195
The Greenhouse.....	196
On the use of Chloroform and Sulphuric Ether in Veterinary Practice.....	196
The Sugar Cane.....	197
Manure—Concentrated or Special, &c.....	198
Turnips for Green Manure.....	199
Making Manure.....	201
High Prices of Improved Breeds of Sheep well sus- tained.....	202
Sound Potatoes.....	204
Rot and Mildew in Grapes.....	206
The Teeth of the Horse.....	208
The Small Industries.....	209
Editorial Notices.....	210
The Farmer.....	210
Literary Notices.....	210
Southern Planter, Credits, &c.....	211
The Commissioner of Agriculture.....	211
Central Industrial Association of Mississippi.....	212
New Variety of Wheat.....	212
Seed Enough.....	212
The More Lime the More Manure.....	213
Specialties in Farming.....	213
Nitrate of Lime as a Fertilizer.....	214
The Department of Agriculture—Glover Museum.....	215
Storing Celery.....	217
Silk Plant discovered in Peru.....	217
Labor Contracts.....	218
Exhibition of American Poultry Society.....	220
Our Agricultural Program.....	220
Culture of Broom Corn.....	221
Economy in Feeding Horses.....	222
Butter and Cheese.....	223

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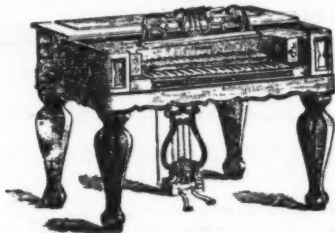
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The land is very level, free of rock, and all arable. It is well ditched, and under good chestnut fence. It has all (with a small exception) been well limed, and produces clover finely. The average crops have been 2130 bushels of wheat, 2000 of corn, 1500 of oats. Two hundred acres are now planted in corn, and the orchard of 240 peach trees is in full bearing. The farm is rented at present to freedmen on shares—vegetable garden, &c., for use of house.

Improvements—A small cottage dwelling, (the mansion was burned during the war, the walls are standing, and it could be rebuilt at comparative little expense,) 6 cottages for laborers, 2 barns, 2 cornhouses, meat and poultry houses, outbuildings, &c.; the most valuable improvement being a large and substantial steam saw and grist mill, erected since the war. The building is 70x72 feet—a part being two stories high—with fire proof roof. The lower story contains a twenty horse-power engine—boiler, with steam gauge, &c.—one of Page's circular saws—48 inch saw, 35 feet carriage, 70 feet ways—at present cutting from 2,500 to 15,400 feet of lumber per day, according to size (the grain being ground by night or at leisure times) saw-logs can easily be floated to the mill; also one of Harrison's French Burr Grain Mills, (36 inch stones,) capable of grinding 12 to 15 bushels of corn per hour. The machinery is new.

A railroad track extends from the mill to a wharf, where vessels can load with lumber or grain.

The lumber brings, on the wharf, \$17 50 to \$20 per thousand feet for the pine, and \$40 for the oak.

The mill (which is offered more work than it can do) is now under rent, by contract, to responsible parties, who are obligated to give up the contract if such should be the wish of the purchaser in the event of sale.

[It may be here stated, that the owner of the property will sell only because imperative private affairs call him to another part of the country.]

The farm adjoins the village of Westville, the county town, and a place of considerable trade. Postoffice, churches, male and female academy, stores, inns, coach and blacksmith shops, &c. are in sight from the door of dwelling. A mail steamboat from Norfolk and Old Point Comfort stops at the landing, 2½ miles off, three times a week, and a daily boat is expected this summer. The roads in this section are level and smooth. The place is healthful.

TERMS—The property, as it now stands, including the growing crops and the stock, viz, 6 horses and mules, 4 fine milch cows, 6 oxen, 10 head of young cattle, 14 fine hogs, 8 new ploughs, 3 double harrows, 2 rollers, 1 wheat drill, 1 reaper and mower combined, 2 threshing machines, 1 wagon, 1 ox cart, 3 timber wheels, chains, &c., all in good order, will be sold for twenty-five thousand (25,000) dollars cash, and immediate possession given, if sold immediately. Address EDWIN A. LEWIS,

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It is a sure preventive of all diseases incident to

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Price 25 Cents per Paper, or 5 Papers for \$1.

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The New Improved Family Machine is without a rival, and cannot be surpassed,—a Hemmer, Feller, Braider, Quilter and Guide go with each Family Machine free of charge.

Every Machine is as near perfection as the best machinery in the world can make it.

They are adapted to all kinds of Family sewing, and Manufacturing of every description, making a beautiful and perfect Stitch, alike on both sides of the articles sewed, and will neither rip nor ravel.

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**DIRECTIONS FOR MEASURING.**  
**COAT.**

Length.....from 1 to 2 and 3	Around the Waist under the Coat.....8
Arm.....4 to 5 and 6	Height.....ft in.
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Length, from 1 to 13, with last two Coat Measures.

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Outside Seam from top of Waistband...10	Around the Waist under the Coat.....8
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Around the Neck under Cravat, 16, with all the Coat Measures.

Gentlemen at a distance can order their Clothing by the above system of measurement which can be taken by any one, whether a tailor or not. All orders will have prompt and careful attention, and be filled with strict reference to the well-earned reputation of the House for TASTEFUL and SUBSTANTIAL Clothing. Prices guaranteed to be lower than Merchant Tailoring Establishments generally. Samples of Materials, with prices sent by mail, when desired.

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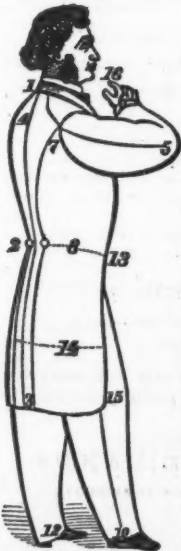
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Sold by us the present year, we beg to congratulate them, and say we shall be prepared to furnish more of the same sort next season, and in the meantime would call their attention to our large and general stock of

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OF EVERY DESCRIPTION.

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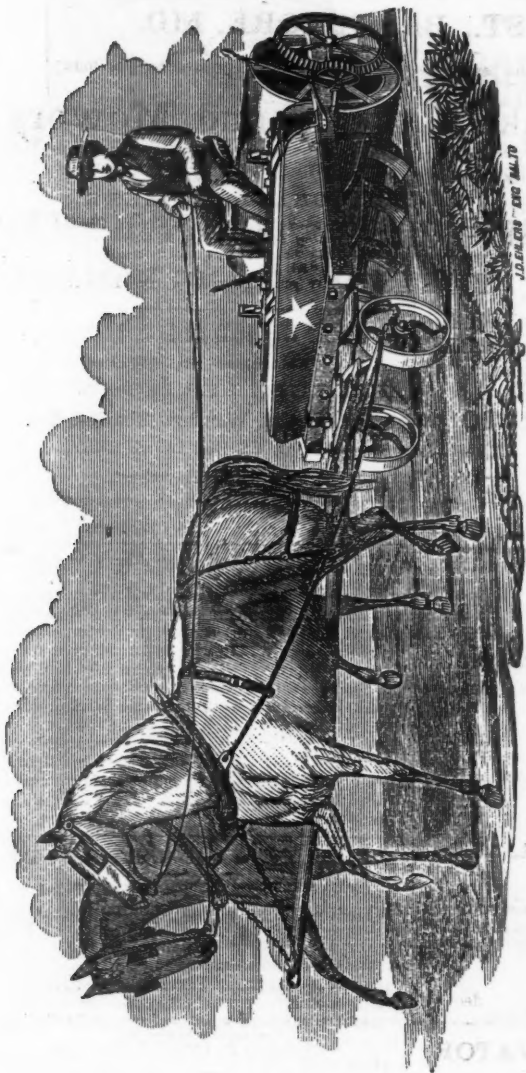
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THIS MACHINE ploughs the ground, seeds the grain, and rolls the surface smoothly for the Harvester. In the use of this machine we claim the saving in labor of five hands and horses over the old system. One hand will plough, seed and roll from six to eight acres per day. We claim that grain seeded by this machine is not liable to be affected by the winter freezes, but grows vigorously throughout the winter. As certificates of many farmers will show, we claim a saving of at east one-third of the grain seeded per acre.

It seeds all kinds of small grain and the different grass seeds with perfect regularity, and any quantity to the acre desired. As a Corn planter, or drill, it cannot be surpassed—dropping the corn in the drill ten, twenty or thirty inches apart, the rows forty inches wide; all with perfect regularity. Also, for seeding Hemp, Sorghum, Doura Corn, Peas, Beans, &c., it is equal if not superior to any.

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The farmer will find it his best friend. "Labor is Money." All we ask is a fair trial of THE STAR DRILL.

For reference is annexed certificates.

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This is to certify that I thrashed with my thrasher a field of wheat on the Nashville and Russellville Pike, seeded by the "Star Drill," and am fully satisfied that the yield is double if not more than that of any other wheat in that section seeded in the ordinary way.

J. H. GOUGH.

LOGAN COUNTY, Ky., June, 1867.

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**Fresh Bone Super-Phos-  
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Can do all that Guano can possibly  
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For cotton and tobacco, Listers' Fresh  
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**WHEAT OR RYE,  
CORN, OATS,  
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GRASS, &c.**

By using liberally the first year,  
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This Reaper will have a Self-Rake this season.

The above machines we can recommend to our friends and customers as the best machines in the market.

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**Skinner's Sulky Flushing Gang Plow, Wheat Glean-  
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All the different patterns.

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aug-17

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Improvements—Brick dwelling, in good repair, containing five rooms, besides passages, closets, and store-room. Brick meat house and dairy, kitchen, barn, stable, corn houses, and all necessary out-buildings. For price and terms address,

EDWIN A. LEWIS,  
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**MINERAL AND TIMBER LAND  
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**A Tract of Land Containing 1,500  
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(One tract of 1,350 and one of 150 acres, adjoining,) known as "The Fairfax Land," situate about 12 miles south of Tunnelton Depot, Independence and Thornton, on the Baltimore and Ohio Railroad, and on the head waters of Big Sandy Creek, Preston County, West Virginia, (about 5 miles from the "Fanny" Furnace, on the waters of Brushy Fork, on the edge of Barbour County West Virginia.)

There are county roads from Tunnelton, Independence and Thornton Depots, on the Baltimore and Ohio Railroad, to the land.

This tract contains valuable iron ore, and the 11-feet vein of bituminous coal, as well as cannel coal; also a large vein of limestone and fire clay.

The tract is well timbered, there being plenty of tan bark and stave timber on it.

There are some improvements on the 150 acre lot.

There are two oil wells in successful operation near the property, one a mile on the west and the other three-quarters of a mile on the east side.

This is a valuable property, and will be sold low on early application.

Title perfect and property free of incumbrance.

For price and terms address

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**FOR SALE,**

**COUNTRY SEAT,**

SUITABLE FOR A BOARDING SCHOOL

(much wanted in the neighborhood)

OR A LARGE FAMILY.

The Farm—situate near Lower Yeocomico Creek and about 2½ miles from Kinsale, Westmoreland Co., Virginia—contains about 99½ acres, of which 18 or 20 are in wood—the remainder open, and generally level; about 65 acres being in a very high state of improvement.

Over 100 fruit trees on the place, and a number of very choice grape vines, producing excellent wine.

One Brick Dwelling, with 4 rooms and an Entry, and one Frame Dwelling, with 8 rooms and an Entry.

Both houses in good repair, and situated within 15 yards of each other.

Good Stable and Barn under one roof.

Episcopal, Methodist and Baptist Churches in the vicinity, and the roads are firm and generally level.

The region is healthy, and the society in the neighborhood is pleasant.

The place is easily accessible—it being about 2½ miles from Kinsale, where boats touch frequently every week, from Baltimore, Alexandria and Washington.

Fish and Oysters abound at all seasons of the year.

If desired, the Live Stock, consisting of Yoke Oxen, Sheep, Cows, Yearlings and Colt—value \$250—would be sold.

Also, if wanted to increase the size of the farm, an adjoining farm of 167 acres. For price,

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**FOR SALE.**

**A FINE FARM**

Of Four Hundred Acres,

IN WESTMORELAND COUNTY, VIRGINIA,

Bounded north by an inlet or bay of the Potomac river, and east and west respectively by large creeks, requiring but little fencing to inclose the entire tract, the river and creeks serving the purpose of enclosure on three sides, and affording in abundance all the delicacies of the salt water—fish, waterfowl, oysters, &c.

The planting of oysters might be made a source of great profit, there being more than two miles of excellent shore entirely under the control of the owner of the farm. The land, with the exception of about forty acres of wood, is cleared and arable; the soil a heavy loam, peculiarly adapted to the growth of wheat, clover and grasses.

The growing crops at present are thirty acres of wheat, thirty of oats, and one hundred planted in Indian corn.

The orchard contains about one hundred trees—apple, pear, peach, cherry and plum. Besides the orchard are numerous scattering trees of all the varieties above mentioned.

Improvements consist of a substantial BRICK DWELLING, containing seven rooms, beautifully situated on one of the creeks. In view of the river, with several frame out-buildings, ice-house, barn, &c.

Price \$20 per acre for the entire tract, or one-half, exclusive of buildings, at \$30 per acre.

Possession can be had immediately, provided satisfactory arrangements can be made in regard to the growing crops. The title is unquestionable.

The place is readily accessible by steamboats from Baltimore, Washington and Alexandria.

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3 miles from Alexandria, Va., and 9 miles from Washington, D. C., with a full view of the Potomac River, Mount Vernon and Maryland.

The Farm contains 305 acres, of which 90 acres are in wood, the balance under fence and fine cultivation. Springs convenient all over the farm.

The Improvements consist of—

1. A Frame House, 16x40 ft., for laborers—Cistern attached.
2. A Stable, 35x30, 16 ft. high, with stalls for 6 horses, 12 cows; hogpens, and a Hay loft.
3. A Barn, 35x30, 16 ft. high, with Corn Crib.
4. A Wagon House, 54x14, 11 ft. high, with Loft for grain.

All the above buildings erected last summer; (1896.) 5, 6 and 7. Houses for hands.

There is a magnificent site for a Mansion—the cellars already made.

Price \$55 per acre. \$4000 can remain on mortgage until 1st March, 1899.

Balance payable to suit purchaser.

If desired, all stock, implements and tools can be bought with the farm, viz., 9 Cows, 6 Horses, 2 Wagons, 2 Carts, 4 and 2 horse Harness, Plough Gear, 12 Ploughs, 2 Cultivators, Harrows, &c.

Cash price \$1450. Also, about \$500 of Corn, Potatoes and Fodder.

## —ALSO—

ONE OF THE MOST DESIRABLY LOCATED FARMS

ON THE POTOMAC,

3 miles from Alexandria, Va., with full view of Washington, Alexandria, Mount Vernon, and the Potomac River.

It contains 53 acres, of which 23 acres are in wood. Fine orchard of young bearing trees.

The Improvements are—

1. A Frame Dwelling House, 40x17, containing 4 plastered rooms up stairs, and 6 rooms in the basement.
2. A Stable, 30x20, with closed shed attached, for 9 cows, hogs, &c. &c.
3. A Dairy, (brick.)
4. A house 12x16 for hands.

All the buildings erected last summer, (1896.)

Price \$60 per acre, payable in 4 years.

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Stock, Vehicles, Farm Implements, Utensils, Furniture. Price \$1850.

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## FOR SALE, A BEAUTIFUL FARM,

CONTAINING NEARLY 400 ACRES,

The soil being equal to any in all the Piedmont (Virginia) region, and considered about the best farm in the county. It is located in sight of the Orange and Alexandria Railroad, in view of and between two villages, and near two depots.

Large and fine orchard of every variety of fruits; brick houses, good barns and suitable buildings.

Terms of sale—CASH.

For full description and price, address

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The attention of Emigrants and Capitalists wishing to settle or invest in North Carolina, West of the Blue Ridge, is invited to the

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Containing, by recent survey, 426½ acres, lying on the line of the Baltimore and Potomac Railroad, which passes through the land—6 miles from Port Tobacco, and 7 miles from navigation—in Charles county, Maryland.

It is accessible by stage route from Washington city to Port Tobacco, the stage passing the place three times a week—distance 26 miles—or by daily mail boat from Washington to Glymont, thence by stage to Port Tobacco, the county seat.

The place is convenient to post-office, mills, churches, &c. Three hundred acres are arable, the remainder covered with timber—chiefly white and red oak timber of the best quality, also pine.

The soil is alluvial, the land gently rolling, and well adapted to the growth of all the staple products of the county, viz. wheat, corn, oats, and tobacco, and could be made profitable for grazing.

The land is well supplied with springs and streams, the latter affording water-power.

It can be divided into two parts, with timber for each, and will be sold either in whole or in part.

An orchard of 220 trees, planted in 1866.

Fencing in good condition.

Improvements—Brick dwelling, with 6 rooms and attic; situated in a grove of oak timber, with spring about 50 yards from kitchen; stables for 8 horses; corn-house; granary, with sheds; tobacco-house, (capacity 15 hds.) carriage-house, ice-house, meat-house, poultry-houses, &c., &c., also 2 houses for laborers.

Location, which is on table land, is healthy.

Title unquestionable.

Price \$30 per acre, Cash.

Immediate possession given.

The farm is well stocked and provided with implements, any or all of which will be sold if desired.

A plat of the property can be seen by calling on the undersigned.

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The undersigned will have, in addition to his own judgment, the benefit of the experience of the proprietors of "The American Farmer," both of whom are practical agriculturists.

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To secure reliable Plants for our own vineyards, we have established extensive Green-houses for propagating under glass, and can confidently recommend our stock to vineyardists and amateurs.

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November 22, 1867.

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The Acid itself will not combine with water, and if mixed mechanically and syringed upon plants, the water runs off, leaving the acid, which scorches and destroys the leaves. Hence the necessity for these Compounds, which not only spread freely over the leaf, but are lasting in its effects. The compound known as

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Is a soluble Soap, easily dissolved in hot water, to which cold water may be added until of the desired strength. For trees, and strong growing plants in open air, 5 lbs. of the Protector to 50 or 100 gallons of water will, as a rule, prove strong enough. For use in-doors a weaker solution will suffice.

Sold in 1 lb. Canisters, at 50 Cents.

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10 " " 2.25

50 lb. Kegs, at 10.00

Larger packages put up, if ordered, and at less price.

Applied undissolved to the stems of young trees, it will afford complete protection from rabbits, mice, squirrels, &c.

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For use in Scrubbing and in the Laundry.

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For convenient use in washing horses, dogs, cattle, &c., destroying fleas and other vermin, and completely protecting from flies; curative of sores, scratches, and chafes of all kinds. 40 cents per lb.

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For curing scab, and destroying insects on Sheep. Put up in same form, and at same price as PLANT PROTECTOR.

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This machine is capable of threshing, separating and bagging from 600 to 900 bushels of wheat per day, and from 1,000 to 1,200 bushels of oats per day. It is mounted on trucks, and can easily be moved about by two horses.

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